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ABSTRACT

The effects of a preschool experience on the performance levels of 151 trainable mentally retarded (TMR) 9-11 year old children, teacher attitudes, and parent attitudes were examined. Three years of longitudinal performance data were investigated with a repeated measures ANOVA design, and 42 instructional variables and their relationships to child performance were examined through multiple regression techniques. Among results were that the preschool experience had a significant impact on Ss' performance levels, particularly in academic and motor skill areas; the more years of preschool Ss had, the greater the difference between their scores and those of children without a preschool experience; teachers did not rate the performance levels of post preschoolers differently than Ss with no preschool experience; and parents of the TMR Ss who had attended a preschool believed their children to have developed more self help skills, to be less of a physical drain on the parents, and to provoke less anger in parents than did similarly handicapped children who had not attended a preschool. (Author/CL)

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# THE LONGITUDINAL IMPACT OF PRESCHOOL PROGRAMS ON TRAINABLE MENTALLY RETARDED CHILDREN

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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ERRATA

P. ii Line 13 should read impact not Inpact

P. ii Line 15 should read without not whithout

P. 4 Line 15 should read Ypsilanti not Upsilanti

P. 5 Line 11 should read identify not identity

P. 12 Line 12 should read have not has

P. 25 Formula should read

$$\bar{X}_1 - \bar{X}_2 \geq 1/3$$

P. 25 Line 18 should read 50.481 not 80.481

P. 49 Line 12 should read do not to

P. 50 Line 2 should read do not to

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## Abstract

The effects of a preschool experience on the performance levels of trainable mentally retarded (TMR) children, teacher attitudes and parent attitudes were examined. Three years of longitudinal performance data on 151 TMR children were investigated with an ex post facto 3 (preschool vs. no preschool) X 3 (9-, 10-, and 11-year olds) X 3 (years of performance data) repeated measures ANOVA design. Further, a total of 42 instructional variables and their relationships to child performance were examined through multiple regression techniques. Finally, the attitudes of parents and teachers of TMR students toward those students and preschool programs were examined through forced choice Likert type measures. Results indicated that: 1) the preschool experience had a significant impact on performance levels of students, particularly in the academic and motor skill areas; 2) the CA of students had a significant inpact only in the academic area; 3) the more years of preschool children had the greater the difference between their performance scores and those of children whithout a preschool experience; 4) differences between the preschool experienced children's (particularly those with two years-of-preschool) and non-preschool childrens performance scores tended to increase over successive years in school age programs; 5) the variance in student performance scores was largely accounted for by how frequently instructional programs were updated, the amount of time in instruction, and the accuracy with which cues and consequences were delivered during instruction; 6) teachers did not rate the performance levels of post preschoolers differently than children with no preschool experience; and 7) parents of TMR children who had attended a preschool believed their children to have developed more self-help skills, to be less of a physical drain on the parents, and to provoke less anger in parents than did similarly handicapped children who had not attended a preschool.

# CHAPTER 1

## Introduction

Educational services for young disadvantaged and handicapped children has received considerable attention during the past 15 years. The provision of those services has been directed toward preventative and remedial outcomes. Much of the original importance allocated to the recent emphasis in preschool education for the handicapped can be accredited to the persuasive arguments of Hunt (1961). His review of experiential factors on intelligence, lead him to challenge the belief of fixed intelligence and inflexibility in the developmental process. In the concluding remarks of that work, Hunt suggested that " . . . it might be feasible to discover ways to govern the encounters that children have with their environments, especially during the early years of their development, to achieve a substantially faster rate of intellectual capacity" (p. 363).

Another milestone in support of early education was published three years after Hunt's work. Bloom (1964) reviewed the child development research and concluded that a child's experiences have a substantial impact on that child's subsequent development, particularly during periods in which a given behavioral characteristic is undergoing rapid change. Infancy and early childhood are periods of rapid change, which lead Bloom to conclude that experiential influence is greatest during the first few years of life. The studies of Kirk (1958, 1965), Skeels (1966) and Dye (1939, 1966) while lacking the precision of more recently reported studies, were viewed as four of the most well known efforts to examine the long term effects of manipulating the early environments of handicapped children. In each of these studies, intervention during the preschool years was reported to have

substantially influenced the demonstrated functioning of experimental as compared to control subjects. Cumulatively, then these studies substantiate the need for providing stimulating experiences during early childhood to enable disadvantaged and handicapped children to reach higher levels of functioning.

Many of the current models for early educational intervention with preschool handicapped children were in their formative stages during the years immediately following the renewed interest in preschool education. Since those models were less than adequately delineated in the early 1960s, Head Start programs largely adopted the prevailing program styles utilized by middle and upper class private preschools. While the Westinghouse evaluation of Head Start programs (Cicirelli, 1969) across the nation was not supportive of the impact those programs were intended to have on children, other more homogeneous experimental programs were demonstrating significant results in IQ, cognitive and other skill development areas (Bereiter and Engelmann, 1966; Gray and Klaus, 1969; Hodges, McCandless and Spiker, 1967; Weikart, 1970). However, the gains realized by children served in these more homogeneous programs were seldom maintained after children left those programs. It was frequently observed that children from control groups caught up with the experimental group children one or two years following the preschool years. While several attempts were made to explain the "fade out" of program impact, the literature continued to suggest that preschool experience produced largely temporary increases in demonstrated performance rather than long term alteration of functional levels.

Much of the research reported during the early 1970's focused on comparative aspects of various early childhood education models. Those models had been shown to produce impact on child behavior, but questions of which program produced the most gains remained a paramount issue to model developers.

Reports from several sources (Bissell, 1971; Karnes, Treska, and Hodgins, 1972; Miller and Dyer, 1975; Weikart, 1971) failed to indicate consistent results of one program model's superiority over another. The failure of one approach to be shown consistently more effective than others led Mayer (1971) to conclude that it is not a particular model that makes a difference, but rather the planning and organization of curricular activities found across successful approaches that accounts for observed performance differences. More recently, Weikart (1972) reached a similar conclusion suggesting that the important program variables of successful models appear to be the amount of planning and supervision used with those approaches.

Bronfenbrenner (1975) readdressed the longitudinal effect of preschool programs in his review of 12 studies attempting to determine skill gains resulting from early intervention. Bronfenbrenner concluded, based upon the results available at that time, that neither earlier entry into preschool programs nor longer enrollment in those programs resulted in extended gains during later school years. More promisingly, Kagan (1976) presented data and an argument against the doctrine of irreversibility of deficits. From studies conducted both in this country and abroad, Kagan maintains that deprivation encountered in the first three years of life can be overcome by subsequent educational and environmental intervention.

More recently, sources have been reporting maintenance of gains of experimental children for greater periods of time following preschool enrollment. Hayden and Haring (1976) reported that Down's syndrome children that had been enrolled in a structured preschool program were demonstrating more advanced skills across several school ages than did similar children not exposed to the preschool program.

Palmer (1977) reported that children who received a preschool experience demonstrated significantly higher IQ scores and arithmetic achievement scores and that the average child in the experiment group was six months more advanced than control children. Further, 45% of the control children were one or more years behind grade level in academics as compared to only 22% of the experimental children.

Lazar, Hubbell, Murray, Rosche, and Royce (1977) reviewed studies previously reported to have observed washout effects following preschool. Gains originally reported to have deminished by the second grade were observed again during the fifth grade. Also, of the five studies reviewed that had special class placement data, four of those studies reported from 50% to 90% fewer special class placements for children who had been enrolled in a preschool program for children with no preschool experience. Similarly, Schweinhart and Weikart (1977), in an eighth grade follow-up of children who had attended High/Scope's Upsilanti Perry Preschool Project, found that although significant IQ scores were not observed between experimental and control children during their eighth grade year, experimentals were still scoring significantly higher in reading, language and arithmetic, as measured by the California Achievement Test. Further, by the fourth grade, 38% of the non-preschool children had been placed in special classes, as compared to only 17% of the Perry Preschool children.

Cumulatively, the numerous articles would suggest that at least with disadvantaged or mildly handicapped children, a preschool experience in a well planned and monitored program will result in immediate gains that are likely to last for at least four years following that experience. Further, the benefits of that experience, as measured by standardized measures and special class placement, may maintain well into the public school years. However, with the exception of the preliminary data reported by Haring and

Hayden (1976), too little is yet known about the intermediate and long term gains of moderately and more severely handicapped children who have been enrolled in a preschool program, when compared to peers who have not.

It would be naive to conclude that the existence and expansion of preschool programs has been totally determined on the basis of the above and other related preschool studies. In reality, the expansion of those programs may be attributable to what Caldwell (1973) has descriped as an evolution in public attitudes toward handicapped children. Caldwell maintains that public response to the handicapped has evolved through at least three states: forget and hide, screen and segregate, and identify and help. Much of the "identity and help" phase can be attributed to parents, educators and other interested citizens, operating primarily through interest groups like the national and local Associations for Retarded Citizens groups. Many of the original special classes were started by these groups to provide appropriate educational services for children excluded from, or inappropriately served in, traditional educational settings. Equally important, if not more so, has been the political pressure brought to bear by such organizations in public sponsorship of educational and related services for the handicapped.

In 1968, Congress allocated funds for the Handicapped Children's Early Education Assistance Act. Increasingly, throughout the last decade, interest, research and training have resulted in larger numbers of children being identified and served through HCEEP programs at the local levels. Since 1975 the Bureau of Education for the Handicapped's budget for handicapped children's early education programs has maintained at the $22 million dollar level and has funded over 500 programs designed to develop and demonstrate effective and replicable models of service for young (birth to nine years) handicapped children.

Through passage of PL 94-142, which mandates a free and appropriate public education for all handicapped children ages 5-18, incentive funds are available to states and local school districts to provide educational services to handicapped children ages 3-5 years. Further, Head Start programs, as a result of congressional mandate, include 10% of their enrollment opportunities to handicapped children. These efforts have resulted in a trend for states to extend downward the permissive and mandatory age levels for serving the handicapped children (Ackerman and Moore, 1976).

Teacher Competencies

Various attempts have been made to identify competencies of effective teachers. Competencies here refers to knowledge, skills, and/or behaviors that teachers possess and which have been associated with appropriate pupil change. However, Health and Nielson's (1974) and Merroe's (1975) reviews in this area revealed no studies which could directly relate teacher skills to measures of student achievement.

Certain investigators have attempted to determine teaching competencies. from questionnaire or opinions from experienced teachers. Altman and Meyen (1974) developed a pool of competencies by sending questionnaires to 587 public school personnel. Bullock, Dykes and Kelley (1974) elicited responses regarding 123 competency goal statements from trained teachers and supervisors of teachers of behaviorally disordered children and youth. Courtnage, Brody, Suraski, and Schmid (1975) described a noncategorical competency based teacher training model based upon the experiences of university staff. Rosenshire (1974) provides an excellent summary of work done to date in the identification of competency indicators. In that summary Rosenshire identifies nine major variables, whose relationships to children's learning warrants further examination: 1) clarity of teacher presentation; 2) variety of teacher initiated activities; 3) enthusiasm of the teacher;

4) a teacher's emphasis on learning and achievement; 5) teacher avoidance of extreme criticism; 6) positive feedback to students; 7) student opportunity to learn to set criterion level; 8) use of structuring comments by the teacher; and 9) multiple levels of questioning or cognitive discussion facilitated by the teachers. While Rosenshire's review suggests that these variables are related to student skill acquisition, limitation of sample size preclude generalization of these variables to all educational environments. The necessity for additional correlational studies relating instructional variables to student performance is called for. Hall (1976) summarized the situation by stating that there is a general lack of research on whether competency based teacher education programs are effective in producing teachers whose children subsequently perform better on academic measures or whether competency based teacher education programs are effective in producing teachers whose children subsequently perform better on academic measures, or whether there is, in fact, a set of teacher characteristics and behaviors which relate to student achievement.

Fredericks, Anderson, Baldwin, Grove, Moore, Moore, and Beaird (1977) conducted a study using student performance gains to isolate effective teachers. By observing teachers across several predictor variables and statistically regressing those variables on student gain scores, the authors were able to determine that student gain scores were related to three principal variables: 1) maximizing the amount of instruction time, 2) utilization of a task analyzed curriculum, and 3) the quality of feedback (consequences) delivered in the instructional setting.

Teacher Attitudes

There appears to be a paucity of studies which look specifically at teacher attitude as related to children who had preschool experiences, as opposed to children who have not had preschool experiences. Shotel, Iano,

and McGettigan (1972) looked at teacher attitudes associated with the integration of handicapped children. A 13 item forced choice questionnaire was used to elicit teacher's attitudes towards: 1) placement of handicapped children in regular classes with resource room support; 2) potential of handicapped children for normal academic achievement; 3) potential of handicapped children for normal social adjustment; 4) self-perceived competencies for teaching handicapped children; and 5) the need for special methods and materials in teaching handicapped children. Two groups were compared. The experimental group consisted of teachers who had handicapped children (EMR) in their classrooms and received instructional assistance from a resource placement teacher. The control group was comprised of teachers who did not have handicapped children in their classrooms, but who did have at least two self-contained classes for handicapped children in their school buildings. Results indicated that: 1) experimental group teachers initially expressed greater optimism concerning the handicapped child's integration into regular classes, academic potential and potential social adjustment than they did at the end of the study; 2) that there was no significant difference for the control groups between the pre and posttests on estimates of their competencies to teach children in the three disability areas (emotionally disturbed, educable mentally retarded and learning disabled); neither were there significant changes within the experimental or control groups from pre to posttest; 3) teachers consistently rated themselves lower on the posttest than on the pretest in their competency to teach handicapped children even with resource help; 4) regular teachers in both groups believed that special methods and materials were needed to teach handicapped children; and 5) teachers were consistently more positive and/or optimistic in their responses when referring to the learning disabled children and least positive when referring to educable mentally retarded children.

Lennington (1973) conducted a study where teacher attitudes were measured after those teachers were exposed to a staff development program designed to assist them in improving their instructional skills with handicapped children. The experimental group contained teachers who went through the professional development program while the control group teachers were not exposed to the professional development program. Results revealed no significant differences in attitudes towards exceptional children as a result of training. In the experimental group, however, it was found that the attitudes of the teachers participating in the training were significantly more desirable both at the beginning and end of the study than were the controls.

McGure (1973) analyzed the attitudes of school administrators and teachers of EMR children within selected school districts in New York. The results revealed that attitudes of chief school officers, building principals and teachers of the EMR were significantly related to the quality of educational programs provided for EMR children within the respective school districts of these educators.

Zucker and Meyer (1975) examined attitudes of special education teachers across several states using the Minnesota Attitude Inventory. Stability of attitudes were also compared over a five year period. Geographic differences, attitudes between midwestern and New England special class teachers were investigated. Results indicated high stability over a five year period and no geographic differences. The stability findings were consistent with those reported for regular class teachers and suggested generalization to special class teachers. No inference was made as to the quality of attitudes, only that they were stable.

Parental Attitudes

One aspect of studying the impact of preschool experience for handicapped children involved parental attitudes toward early childhood education programs. Parental attitudes toward different components of the programs, both center and home based, toward special education and toward their own children have been reported in the literature. Several studies report generally positive parental attitudes toward all types of preschool intervention (Allen, 1973; Lazar, Hubbell, Murray, Roschs, and Royce, 1977; Klein, 1974). That parents consider the preschool years to be the optimal time to give their children special attention was reported by Allen (1973) after surveying the parents of low achieving elementary school children in a midwestern city. This recognition of the importance of early education was true whether the parents felt the greatest need to be academic, social or physical.

In a paper presented at the Office of Child Development's Parents, Children and Continuity Conference, El Paso, Texas, Lazar, et al. (1977) reported preliminary findings from 12 studies of the long-term effects of early childhood education programs for low income children. The investigators focused on a number of program variables of interest to parents, including parental evaluations of programs. Parents who had been involved in a home based, center based or combination programs all reported that they believed the programs were good for their children. When asked what they liked best about the program, parents who had center based programs (N = 295) chose cognitive aspects (33.9%), program characteristics (23.7%), and socio-emotional aspects (22.4%) as their top three preferences. When asked what they did not like about their center based program, 81.5% said nothing.

Another method of examining parental attitudes has been to obtain parental reactions to various types of programs. Klein (1974) measured the reactions of parents to a school and home training program for four year olds. Both handicapped and non-handicapped children were included. All pupils were rated by their parents prior to the beginning of each project year and rated again prior to entry into kindergarten. Parents rated their children significantly higher at the time of entry into kindergarten in the areas of personal and social development, motor skills, and language and concept development that they had prior to entry into the preschool program.

Conekin (1976) similarly found when a 50 item questionnaire was administered to parents of disadvantaged children with and without preschool experience that parents expressed generally favorable attitudes toward the education their children were receiving at school. Parents were reported to believe language arts had the greatest value for their children and that reading was the most important school subject.

Hemon, McGann, Roos, Menolascino, and Heal (1977) surveyed parents who were using a sensory-motor home training program. A significant number of the parents believed that: 1) improvements would not have occurred without the program, 2) that they would be willing to repeat the program if they had it to do over again, 3) that they would willingly recommend the program to another family, and 4) that they would attribute some change or effectiveness to the home program. Parental estimates of the quantity of change, although indicating perceived improvement as a result of the program, failed to reach significance.

Additional evidence as to changing parental attitudes before and after their children's preschool experiences was reported in Hess' (1976) review of six preschool intervention programs, each of which assessed changes in parental attitudes. Five programs found positive evidence, although not

always significant. The two attitudes for which significant changes were most often found were: 1) greater sense of personal control over one's own life; and 2) more flexible attitudes toward the child and his/her development.

Forest and Schneider (1971) found that middle class parents of children in day care programs ranked educational services as the most important feature of the program, while lower class parents ranked it as the number two feature. Those authors reported that the majority of parents expressed satisfaction with their children's present program of child care. Distinctions were not made between parents of handicapped and non-handicapped children.

Attitudinal changes as a result of parent training has also been examined. Lynch (1976) evaluated the effectiveness of an early intervention project for handicapped infants and young children in assisting parents to, among other things, develop more realistic attitudes about the effects of the child's handicap on the total family system. A significant shift was noted in the parents' attitude about the importance of their role at home. Parental attitudes shifted from the belief that home stimulation of a handicapped child by parents is of little value to believing that parents can actively assist their children in acquiring new skills.

While the above studies do illustrate attitudinal shifts by parents following direct parent involvement in their children's educational program, it would be eroneous to believe that all studies have been successful in producing such attitude changes. One such study (Buden, 1974) was unable to produce changes in parental attitudes following their children's four month involvement in a Head Start program, which attempted to change the intellectual abilities of 3, 4, and 5-year-old children.

## Summary

The previous sections have attempted to provide an overview of the literature to date in the area of early childhood education for the handicapped. It has pointed out that the concept of early intervention has been a central issue of education for some time. The early intervention literature presented herein has emphasized and supported three major positions. First, it appears that early intervention does have a major effect on a young handicapped child's life; second, that this effect tends to last at least through the eighth grade; and third, that the curriculum used in those programs is not as important as are the methodologies used to present those curricula to children. In this regard, it is necessary to emphasize that several authors recommended that such programs should have a carefully defined approach with a highly organized set of curricular instructions.

The literature on teacher competencies seems to support the need for planned, systematic intervention. Although few direct comparisons of teacher and program components to child gains exist, Fredericks, et al (1977) did provide emperical evidence to support the necessity of providing instruction in a systematic manner with clearly delineated instructional responsibilities of adults in the classroom.

Other aspects of this chapter covered parent and teacher attitudes concerning early intervention. Although no articles were found which empirically demonstrates difference in teacher attitudes about children who have or have not had early intervention experiences, teachers are reported to believe that early intervention programs are beneficial and their attitudes tended to be directly tied to their experiences and training to work with handicapped children.

Parents were also reported to possess positive attitudes about early intervention, and at least one study suggesting a relationship between parent attitudes and their children's improvement in the motor, language and concept development areas during the preschool experience. It was further demonstrated that parent attitudes about early intervention can change with increased awareness and training in early intervention techniques.

## CHAPTER 2

## Research Questions and Data Source

Despite the volume of literature in the area of preschool intervention with handicapped children, the need to examine a multitude of issues in the area still exists. To date, the majority of that research has focused on the disadvantaged and mildly handicapped children. Much more must be done to examine the comparability of these results with the moderately and more severely handicapped. Of particular importance is the determination of skill acquisition as a result of program intervention and whether those skills maintain over time. Further research must also try to establish an emperical line between teacher and/or instructional variables and skill acquisition in children. Finally, the literature is still inconclusive about how teacher and parent attitudes relate to children's involvement in a preschool program.

In an effort to add to the existing knowledge in this area, the present study examined five research questions.

1. To what extent are the benefits of a preschool experience maintained one or more years following that preschool experience?
2. What post preschool settings and features of those settings are most beneficial in maintaining or increasing the preschool benefits?
3. Are handicapped children who have had a positive preschool experience different from handicapped children who have not had a preschool experience in terms of: a) the way they respond to the post preschool setting, namely, teachers and classmates; and b) the way the post preschool setting, namely teachers and classmates, responds to them?

4. Do parent/guardian attitudes toward the child differ as a result of the child having had a preschool experience?

5. What attitudes towards the child and his or her early education are held by the child's current teacher?

From a methodological perspective, the ideal approach to providing answers to the above questions is by use of experimental research designs. However, the use of experimental designs to obtain longitudinal data for the analysis of program impact is costly in both time and financial resources. A viable alternative to long term costs involved with the more controlled research designs is the use of ex post facto research. The use of such "after the fact" approaches, however, must be accompanied by the realization that ex post facto designs are weak in: 1) the ability to manipulate independent variables; and 2) the power to randomize either subjects or treatment. Consequently, the assuredness of proper interpretation of ex post facto data is less than for similar interpretations from truely experimental data.

Despite the limitations of less stringent designs, the present investigators believe that with recognition of these limitations, accompanied by the extensiveness and uniqueness of data available to the investigators, the ex post facto methods are acceptable for examining existing child performance data regarding the impact of preschool experiences of moderately handicapped children.

Beginning in Spring, 1974 and continuing through Spring, 1977 all preschool and school age children in Oregon who were in trainable mentally retarded (TMR) programs funded by the Oregon Mental Health Division had been given, on a pretest-posttest basis, a criterion referenced inventory of skill development. Data which had been collected as a result of administering that instrument over the years had been computerized at the University of Oregon computation center. That instrument, the Student Progress Record

(SPR), is composed of 13 subtests: receptive language, expressive language, motor skills, social skills, reading, writing, number concepts, money, time, eating, dressing, personal hygiene, and physical fitness. Annual data was reported for each child in each TMR classroom in Oregon on each of the 13 subtests. Inter-rater and test-retest reliability data on the SPR have been collected over the years using the Oregon State Mental Health Division staff for obtaining reliability coefficients with the individual classroom teachers across the state. Overall reliabilities consistently remained above 90% during the years for both inter-rater and test-retest comparisons.

Administration of the SPR throughout the years has reflected the following trends: In 1974/75 overall average gains by 1,162 children on the SPR was nine percentage points. That is, in Spring 1974, children in those TMR programs demonstrated nine percent more skills, as measured by the SPR, than they had the previous Fall. In absolute values, this represented approximately 66 new skills out of the total 1099 items on the SPR. Those areas that showed the greatest gains were social skills, receptive and expressive language, dressing and personal hygiene. Those areas that showed the least gain were number concepts and money. Children in 1974/75 tended to score high on the SPR in the areas of social skills, receptive language, expressive language, eating, dressing and scored very low in number concepts, money, reading, and time.

In 1975/76 average gains for 1540 children who were administered the SPR was 4.72%, or approximately 52 new skills. Gains were shown in all areas with the largest gains being made in receptive language and time and the smallest gains in dressing. Children in 1975/76 tended to demonstrate high pretest scores in social skills, receptive and expressive language, eating, dressing, and personal hygiene and scored low during the pretest

in number concepts, money, reading, and time. Age distributions during the 1975/76 school year tended to show a comparable number of children tested across age levels starting at about nine years and going through 18. It was further observed that children tended to demonstrate the greatest improvement in areas that corresponded to their age levels. In other words, children at the lower age levels made greater percentage gains in social skills, language, self help, and motor skills while the children at the upper age levels made the greatest gains in the cognitive areas.

In 1976/77 the SPR was administered to 1276 children. Mean gain scores across all curricular areas for that year was 5.90% or approximately 65 new skills. The largest gains were made in social skills, time and money. As in previous years, children tended to score high in the pretest on social skills, receptive and expressive language, and eating, dressing, personal hygiene, and motor skills. Children scored low in money and reading skills at pretest time.

This review reveals that in 1977, Oregon had continuous data to track TMR children across at least three successive years. Data were, thus, available for children who had recently completed a preschool experience, as well as for those who had not been enrolled in a preschool program. However, since the data storage system revealed that some children were not administered the SPR during each Spring SPR administration, and because questionnaire return rates did not allow 100% analysis for teacher and parent responses, the subject selection and methodologies for each of the five research questions varies. Therefore, subject selection and methodologies will be discussed in the Results section for the respective questions, followed subsequently by data analysis.

CHAPTER 3

Methods and Results

This study, as discussed in Chapter 2, examined five different questions dealing with the impact of, teaching competencies in, and attitudes toward preschool education for handicapped children. For the five research questions asked in this study, samples were drawn from three different populations: 1) children who, in the Spring of 1977, were enrolled in trainable mentally retarded (TMR) classrooms in the State of Oregon, 2) teachers of those TMR classrooms, and 3) parents of children in those classrooms. The children were further stratified into those who had not been enrolled in a preschool program contrasted to those who had been enrolled in a preschool program for one year and those enrolled in a program for two years. Skill acquisition data of the children, as measured by the Student Progress Record (SPR), were available for Fall and Spring administrations of the SPR for the years of 1975-1977. Teacher and parent data were collected in the Spring, 1977.

Normally, the methodologies used to examine a particular question are presented separately from the results obtained. However, since the subject selection and methodologies for each of the present questions vary, those procedures for each question are presented just prior to the results section for that question.

Question 1: To what extent are the benefits of a preschool experience maintained one or more years following that preschool experience?

Subjects and Methodology

In 1977 a total of 1276 children enrolled in TMR classrooms in the State of Oregon were administered the SPR. Of these 1276, a total of 151

children between 90 and 145 months of age had been administered the SPR over three consecutive Springs and thus became the subjects for the post hoc analysis of skill acquisition over that three year period. Of those 151 children, 52 were between 90 and 109 months at the time of their Fall, 1976 SPR administration, 50 were between 110-127 months, and 49 between 128-145 months of age. For descriptive purposes, those children are con-

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Insert Table 1 about here

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sidered as 9-, 10-, 11-year-olds respectively. Therefore, the 9-year-olds were completing three years of schooling in a school age TMR classroom. The 10-year-olds were completing their fourth year, and the 11-year-olds their fifth year of schooling in a TMR school age (six years of age or more) classroom. Of the 9-year-olds, 22 children had had no preschool experience, 11 had had one year and 11 had had two years. For the 10-year-olds, the respective figures were 21, 12 and 12 children, and 25, 12 and 12 for the 11-year-old children.

The level of each child's handicapping condition was indicated by the child's current teacher, based upon formal diagnostic results and/or general level of behavioral functioning. The four areas of handicapping conditions included level or degree of: mental retardation, motor dysfunction, hearing impairment, and visual impairment. The scale on which the teacher rated the children for degree of retardation was similar to the classificatory system used by the American Association of Mental Deficiency (Grossman, 1977): 6 = profound, 5 = severe, 4 = moderate, 3 = mild, 2 = border line, and 1 = none. For the motor, hearing and visual areas the following scale was used for rating: 3 = severe, 2 = mild, and 1 = none.

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Insert Table 2 about here

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Table 2 reveals that most of the children were classified as moderately to severely retarded with mild or no additional motor, hearing or visual impairment. The three age groups were not observed to be significantly different from one another on any of the four handicapping conditions.

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Insert Table 3 about here

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Table 3 presents similar chronological age and handicapping condition data for the 151 children across the no-, one- and two-years-of-preschool groups. Again, no significant differences were observed across age or handicapping conditions for the three levels of the preschool factor.

The experimental design for Research Ouestion 1 then resulted in a 3 (CA) x 3 (years of preschool) x 3 (repeated Spring SPR administrations) factoral design with the first two factors repeated across each level of the third factor (repeated SPR administrations). The repeated Spring administrations of the SPR are hereafter designated as: $T_1$ for Spring 1975; $T_2$ for Spring 1976; and $T_3$ for Spring, 1977.

The 13 individually measured areas of the SPR were consolidated into five composite areas by combining the 13 specific areas into more traditional major curricular areas for TMR programs. The five curricular areas, with subsumed composite areas, are as follows: social (social); language (receptive language and expressive language); academics (number concepts, money, reading, writing, and time); self-help (eating, dressing and personal hygiene); motor (gross and fine). The results from the five major curricular areas were then available for analysis across three successive years of SPR administration ($T_1$, $T_2$ and $T_3$).

As evidenced in Tables 4-6, rather large variances were observed both within and between cells. In several instances differences for between group comparisons were observed to be substantial but did not yield statistical significance due to large within group variances. When statistical

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Insert Tables 4-6 about here

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significance was obtained for main effects, standard statistical group contrasts (e.g. Scheffe') were not performed. Rather, Tallmadge and Horst (1975) have recently advocated utilization of tests for educational significance. This may be particularly appropriate with large sample sizes, since the magnitude of between group differences is directly related to the probability of finding significant differences. The Tallmadge and Horst (1975) test of educational significance is computed using only mean and standard deviation scores. Exclusion of the sample size in determining educational significance, thus, make the procedure more stringent than traditional contrast comparisons when the sample size is large.

The Tallmadge and Horst (1975) test for educational significance involves comparing group mean differences against the overall group standard deviation. If one group's mean score exceeds the other groups' by more than one-third of that standard deviation, the difference can be considered educationally significant. Thus, when the repeated measures ANOVA results indicated a significant main effect, whether between group contrasts were also significant was determined by the Tallmadge and Horst (1975) test for educational significance.

Social. Table 7 reveals that the multivariate ANOVA results for the main effect of preschool and CA were not significant, indicating no differences in socialization scores between non-preschool and preschool groups

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Insert Table 7 about here

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as well as no difference between age groups. As measured by the SPR, then, whether a child was enrolled in a preschool program or not, had little measured effect on that child's level of socialization skills. Further comparison of no-preschool versus preschool groups and CA groups can be made by examining the marginal means presented in Table 8. The mean socialization scores for the 0-, 1-, and 2-years-of-preschool was 18.270, 17.514

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Insert Table 8 about here

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and 20.215 respectively, and within group variances ranging from 8.532 to 11.188. Figure 1 presents the plotted cell means for the preschool and CA factors over the three Spring administrations ($T_1$, $T_2$ and $T_3$) of the SPR. It is interesting to note that over the three consecutive years for which SPR data were available, there is a tendency, although not significantly so, for those children who were enrolled in a preschool program for two years or more (see Figure 1, Plate 1) to score consistently higher than both the 0- and 1-year-of-preschool groups. Moreover, those differences tend to increase the longer those children have been in school age programs. Socialization scores for the 9-, 10- and 11-year-old groups ranged from

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Insert Figure 1 about here

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18.191 to 19.180 with standard deviations approximately half as large as those mean values.

The multivariate ANOVA for the interaction of preschool experience and CA, however, was significant ($F = 2,097$; $df = 12,371$; $p < .017$), indicating inconsistent cell mean trends for the preschool and CA factor levels. The nature of that interaction can be understood by examining the mean cell scores plotted in Figure 2. Those plots reveal that the variation of scores across each level of the preschool and CA factors undoubtedly results in contributions to that significant interaction. Those contributions are evidenced by an inconsistent pattern for only the 11-year-olds, who showed consistent acceleration over the three levels of the preschool factor.

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Insert Figure 2 about here

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Language. Similar repeated measures ANOVAs were calculated for SPR language scores across the three years of SPR administration. The results of those analyses, also presented in Table 7, reveal no significant main effects for preschool experience, CA or preschool X CA interaction. Again, the results of having been in a preschool program appears to have had little effect on children's performance on language items of the SPR. What's more, age was not shown to influence language skill acquisition. Individual marginal means and standard deviations for preschool and CA factor levels are presented in Table 8.

Academics. Table 7 indicates a significant main effect for preschool experience ($F = 2.830$; $df = 6,280$; $p < .011$) and a significant main effect for CA ($F = 2.332$; $df = 6,280$; $p < .033$) in SPR academics scores across time. No significant interactions between preschool experience and CA were obtained.

The Tallmadge and Horst (1975) criterion was adopted for measuring the educational significance for the differences between preschool and CA group contrasts. Table 8 indicates that the academic marginal means for the 0-, 1-, and 2-years-of-preschool groups was 70.299, 72.752, and 84.563, with a total sample standard deviation of 97.096. The Tallmadge and Horst educational significance computation formula failed to yield an educationally

$$X_1 - X_2 \leq 0/3$$

significant difference between the three groups. While the largest between groups mean difference was 14.264 points, between the 0-years-of-preschool and 2-years-of-preschool groups, a minimum between group difference of 33 points would have been necessary for educational significance. As in the social and language curricular areas, Figure 3, Plate 1 indicates the tendency for the 2-years-of-preschool group to score higher on the academics section of the SPR than either the 0- or 1-year-of-preschool groups, with those between group difference increasing the longer those children are in school age programs.

Table 8 reveals that the marginal means for the 9-, 10-, and 11-year-old groups in the academic area were 80.481, 67.533 and 109.878 respectively, with an overall sample standard deviation of 97.096. Using the Tallmadge and Horst criterion for group contrast between group differences indicates that at least a 32.365 point difference would have been necessary to be educationally significant. Comparison of margin means for the three age groups reveals that the 11-year-olds scored significantly higher than either the 9- or 10-year-olds. The difference between 9- and 10-year-olds academic scores was 17.052, approximately one-half what was necessary to have attained significance. The plotting of the cell means for CA groups is presented in Figure 3, Plate 2.

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Insert Table 9 about here

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A significant linear trend across academic scores was detected for the preschool factor, as well as a significant trend for consistent scores for age groups (see Table 9). Figure 3, Plate 1 reveals that each level of the preschool factor contributed to the linear trend. However, the 2-years-of-preschool group has a more substantial pattern of improvement over time. Plate 2 of Figure 3 reveals that, although there was a significant consistency pattern of SPR academic skills there is a tendency for those scores to increase over time. Those increases for CA, however, are not significantly linear, largely due to the large within group variances for each group.

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Insert Figure 3 about here

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Self-Help. Table 7 presents the univariate ANOVA results for the self-help curricular area. The analyses indicate no significant main effects for preschool, CA, or for the preschool X CA interaction on self-help skills across $T_1$, $T_2$ and $T_3$ administration of the SPR. Consequently, neither preschool experience nor chronological age can, based on the obtained results, be attributed to accounting for observed differential skill gains by TMR children.

The cell means in Table 8, however, do indicate a potential practically significant trend for children who attended a preschool to score consistently higher than children who did not. Those differences are magnified for each successive year the children are enrolled in a post preschool setting. Further, Table 9 reveals that a significant linear trend

(F = 4.450; df = 2,142; p <.013) exists for the SPR self-help scores for the preschool factor levels. At each successive Spring administration of the SPR, there is an increase over the respective group's previously obtained score. The 2-years-of-preschool group had the highest SPR self-help skills acceleration rate, followed by the 1-year-of-preschoolers and finally by the 0-years-of-preschool group.

Motor. Table 7 indicates that a significant main effect for the preschool factor was obtained in the motor skills area (F = 2.349; df = 6,280; p <.031). The marginal mean values for the 0-, 1- and 2-years-of-preschool levels of the factor are 56.422, 60.467 and 71.264 respectively, with an associated overall standard deviation of 32.851. Using the Tallmadge and Horst (1975) educational significance criterion for between group comparisons, the 2-years-of-preschool group scored significantly higher than either the 0-years-of-preschool or the 1-year-of-preschool groups. Although not educationally significant, the 1-year-of-preschool group scored 4.045 points higher than the no preschool group. Thus, even after the effect of CA is partialed out, the experience of having been in a preschool program has a substantial overall impact on the children's later motor performance, particularly if they were enrolled in a preschool program for more than one year.

The univariate ANOVA results, Table 9, indicated a significant linear trend for the preschool factor over time. Examination of Figure 4, Plate 1, reveals a linear pattern for both the 1- and 2-years-of-preschool groups, while the 0-years-of-preschool group displays a quadratic trend of motor responses over $T_1$, $T_2$ and $T_3$. The consistent linear trend of both preschool groups, however, is sufficient to override the discrepent quadratic trend of the non-preschool children. Thus, the effect of a preschool experience appears to have a continuous positive effect on the motor development of

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Insert Figure 4 about here

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TMR children over time.

Taken collectively, the sum results of the repeated measures ANOVA results for the five curricular areas (social, language, academic, self-help, and motor) support the contention that a preschool experience does influence skill development, and that the results of that preschool experience are maintained over time. Significant main effect for the preschool factor revealed that those children who had been enrolled in a preschool program for two years performed better than children enrolled for only one year, who in turn performed better than children who had never been enrolled in a preschool program. Superior performance was particularly evident in the academic and motor skills areas. However, linear trend data also suggested that the amount of previous preschool experience contributed to accelerated performance across all curricular areas, even with the effects of CA removed.

One might logically conclude that with increased CA, and handicapping conditions held constant, children would demonstrate improved skill performance. However, while significant preschool effects were found for two of five curricular areas, CA was found to significantly influence performance in only one area. These results should suggest that, at least with the current sample of 151 TMR students, the effect of the preschool experience influences skill development more so than does maturation (CA).

Question 2: What post preschool settings and features of those settings are most beneficial in maintaining or increasing the preschool benefits?

Subjects and Methodology

Once the total array of TMR children between 90-145 months in the State of Oregon had been identified for potential inclusion in the current study, a listing of those children within their respective classrooms was sent to the teachers in those classrooms. The teachers were then asked to identify those children who had been enrolled in a preschool prior to six years of age, and if so for how many years. Teachers were also asked to identify the level of mental retardation, as well as motor, hearing, and visual impairments. A copy of the classificatory response sheet is included as Appendix A. Once those children with a preschool experience were identified, checks were made to ensure that at least Fall, 1976 and Spring, 1977 SPR data were available for each child. Children that had just moved into his/her current classroom from another school district were excluded from the sample for this analysis.

Questionnaires were then sent to TMR teachers who had children in their classrooms that were appropriate for inclusion in this study. For those teachers responding to the first form about the educational experiences of select children in those classrooms, a second questionnaire (see Appendix B) was sent to teachers asking them to respond to particular items focusing in detail on instructional strategies used with those individual children across the major curricular areas of socialization, language, academics, self-help, and motor skill development.

When the second questionnaire had been returned, an on-site visitation was scheduled with district administrators and individual teachers. A staff member of the Teaching Research Infant and Child Center, or individuals trained by that staff, then went into those classrooms to observe classroom instructional staff administering individual and group instruction

to the children selected for inclusion in this study. Instructional variables, for which classroom observational data were collected, consisted primarily of cue presentation, identifying appropriate and inappropriate child behavior, appropriately consequating and recording child response data during instruction. The observation sheet used in those on-site visitations is included in Appendix C. Each observer had been trained in the use of the observation system and interobserver agreement were all above a .85 coefficient.

A similar procedure had been used by Fredericks, et al, (1976) in examining competencies of teachers in TMR classrooms in Oregon. Those variables determined by Fredericks, et al, (1976) to be related to child performance gains were included among the variables examined in the current study. A total of 38 instructional program variables and four observation variables were delineated and are presented in Table 10. However, only 14 predictor variables were included in the regression analyses for each of the social, language, academic, self-help, and motor areas. The first seven of these 14 variables were identical in nature, but dealt with the particular curricular area in question. Those variables included:

1. the number of written, individual instructional programs that were being administered to each child included in the sample -- programs had to specify instructional cues, terminal child behavior, criterion for acceptable performance, the type of adult feedback, and data collection procedures;
2. the number of minutes required to administer each of the programs in #1 above;
3. the number of times the programs in #1 above were administered each week;

4. the number of programs in #1 above that were also administered in the home;
5. the number of group instructional programs that were being administered in which a sample student was included;
6. the number of minutes necessary to administer the programs in #5 above; and
7. the number of times the programs in #5 above were administered each week.

The remaining seven variables were entered into each of the five curricular program regression analyses, and included:

8. the percentage of all programs administered to the sample child that were developed from an initial assessment/placement test;
9. the average number of days per week that child performance data were collected during instruction to that child;
10. the average number of times per week that individual programs were updated based upon the child's performance data;
11. the percent of appropriate cues, as specified by the written program, delivered by the teacher during administration of that program;
12. the percent of appropriate consequences, as specified by the written program, delivered by the teacher during administration of that program;
13. cues, as discussed in #11 above, delivered by the classroom aide; and
14. consequences as discussed in #12 above, delivered by the classroom aide.

Variables 1 through 10 were obtained by teacher responses; variables 11-14 were obtained by trained observers during direct instruction to a sample child by either the teacher or classroom aide.

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Insert Table 10 about here

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Results

Two forward stepwise multiple regression analyses were computed for each of the five curricular areas: social, language, academic, self-help, and motor. In the first series of analyses the total SPR Spring, 1977 scores for each of the five curricular areas were regressed upon the 14 predictor variables entered in the regression analyses. The first five variables to enter into the equation for each of the five curricular areas for total SPR demonstrated skills are presented in Table 11. These analyses essentially related the predictor variables of importance to the criterion variable, total SPR demonstrated skills. These analyses, then, do not remove skills acquired prior to the Fall, 1976 administration of the SPR.

In this first series of analyses, variable 38, the average number of times a program is updated each week, was the first variable to enter the regression equations for the social, language, and self-help areas and the third variable to be entered for the motor skills area. Variables to enter first for the academic and motor skills area was the number of minutes in which individual programs were administered and number of minutes needed to administer group programs. The second most frequent variable to enter was the number of minutes of group program instructions and was entered second for the social, language and academic areas.

Across the five program areas, the classroom variables that appear to be most closely related to overall SPR cumulative scores are: 1) the frequency with which individual programs are updated each week, 2) the amount of time a child is instructed in a group setting (with his/her own particular program administered in that group setting), 3) the amount of time the child is involved in individual instruction, and 4) the accuracy of the instructional staff in delivering predetermined cues and consequences to the child during instruction.

A second series of forward stepwise multiple regression techniques were used to determine predictor variables for the SPR difference scores from Fall, 1976 to Spring, 1977 administration of the SPR. These analyses include only those SPR measured skills acquired during the 1976-77 school year. The first five variables to be entered into the regression equations across the five curricular areas are presented in Table 12. These analyses allow for examination of current classroom instructional variables that relate to skills acquired during the 1976-77 school year.

For the newly acquired skills, five variables were accounting for the greatest amount of variance. Those variables included: 1) the number of group programs, 2) the amount of group instruction, 3) the frequency with which instructional data are collected, 4) the delivery of appropriate cues, and 5) consequences by instructional staff. Cumulatively, these results suggest that the amount of instruction and the consistency of instructional cues and feedback are paramount for skill acquisition.

Question 3: Are handicapped children who have had a positive preschool experience different from handicapped children who have not had a preschool experience in terms of: a) the way they respond to the post preschool

setting, namely, teachers and classmates; and b) the way the post preschool setting, namely, teachers and classmates, responds to them?

Subjects and Methodology

TMR children from 90-145 months of age served as the population from which the subjects for this research was drawn. Subject selection proceeded by examining the children within each classroom teacher's class roster and further dividing the children into preschool experience and no-preschool experience groups based upon teacher indications. Further, teachers were asked to rate the extent of those children's handicaps (mental, motor, hearing, and visual) on a scale discussed in the subject and methodology section of Question 1. A total of 52 matched pairs of children were selected and for whom teacher rating data obtained. The pairs had been matched on CA and handicapping conditions with those pairs of children drawn from the same teacher's classroom. The only known difference between individuals of a pair was whether or not they had had a preschool experience.

A questionnaire was constructed (see Appendix D) consisting of 48 items or declarative statements about a hypothetical student's behavior. Items included statements about general behavior, interactive responses between the child and peers and adults, and general functional level. The questionnaire had columns of response boxes over which the names of the preschool and no-preschool children appeared. The names of the no-preschool and preschool children were randomly assigned to the left and right columns of response boxes to guard against teacher response bias toward either group of children. The classroom teacher was then asked to indicate the extent to which he/she agreed that the statement described the behavior of individual children in each pair. Teachers rated the statements on a continuous scale as follows: SD = strongly disagree; D = disagree; U = I'm uncertain;

A = agree; and SA = strongly agree. The scale was later numerically coded for statistical analysis.

The 48 items on the questionnaire consisted of 24 items stated in a positive fashion with 24 corresponding items state negatively. The 24 positive-negatively stated pairs were then rescaled to make 24 individual response items with a scaled response continuum of 10 points instead of the five originally designed and used for teacher responses.

Results

Individual coefficient alpha values (Nunnally, 1967) were computed for each of the 24 new items as a measure of internal consistency for item responses. These coefficients along with the response means, standard deviations, t and p values for those items are presented in Table 13. The coefficient alphas ranged from a low of .596 to a high of .964 with the majority occurring in the upper .70's and .80's. The coefficient values indicate strong internal reliabilities for the response items.

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Insert Table 13 about here

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Examination of the t and p values in Table 13 reveals that none of the directional (one-tailed) t-tests were significant for any of the 24 response items; only the item that talked about the magnitude of perceived skill acquisition approached significance. Although short of statistical significance, the preschool group was viewed as possessing more skills as indicated by the mean teacher ratings for item 15 in Table 13. Overall, the results suggest that teachers of the pairs of children who have and have not had a preschool experience do not differentiate between those students.

Question 4: Do parent/guardian attitudes toward the child differ as a result of the child having had a preschool experience?

Subjects and Methodology

Children identified for inclusion in this study were selected first on the basis of whether they had had a preschool experience. For this particular question, non-preschool children were selected as the seconds in matched pair groupings, with pairs matched on CA and severity of handicapping conditions (mental, motor, hearing, and visual) as reported by teachers. A 48 item response questionnaire was developed and responses obtained from 35 pairs of parents of preschool and non-preschool children. That questionnaire (see Appendix E) consisted of 24 items stated positively and 24 similar but negatively stated items about possible parent attitudes, their child and/or his functioning or impact on his/her environment. The 48 response items, each with a five point scale, were rescaled into 24 items, with 10 point scales.

Results

Coefficient alphas (Nunnally, 1976) were computed to measure the internal consistency of responses on the 24 new items. Those coefficients, presented in column 8 of Table 14, ranged from .165 to .888 with most item coefficients in the high 70's and 80's, revealing substantial internal consistency of parent responses.

Means, standard deviations and one-tailed t-tests for each of the 24 newly constructed items are also presented in Table 14. Inspection of the means and t values reveals that on three of 24 items a significant difference between response scores of preschool and non-preschool parents was obtained. First, parents of preschool experienced children more frequently reported that as a result of a preschool experience a handicapped child

would develop more self-help skills than if he/she had not been enrolled in a preschool setting ($t = 1.71$; $df = 68$; $p < .046$). Second, parents of preschool experienced children believed that their handicapped children are not as much a physical drain on their physical energies as they were three years previously ($t = 2.66$; $df = 68$; $p < .005$). Third, parents of a handicapped child who had been in preschool programs revealed that they did not get any more angry with that child than they did with their other children

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Insert Table 14 about here

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($t = 3.20$; $df = 68$; $p < .001$). The three significant results are in the predicted direction with favorable responses coming from parents of children who had been enrolled in a preschool program. Further, mean frequency data indicated there were strong beliefs maintained by parents that preschool is beneficial for those children attending, and that parents both supported preschool programs and would strongly advise other parents to enroll their handicapped children in such programs.

Question 5: What attitudes toward the child and his/her education are held by the child's current teacher?

Subjects and Methodology

Every TMR classroom teacher in the State of Oregon, who currently had a child enrolled in that classroom that had attended a preschool program, was sent a questionnaire devised to identify how those teachers viewed those children and/or handicapped children in general. A total of 86 teachers were identified and mailed a questionnaire for this question, 70 of those questionnaires were completed and returned to the investigators, for a return rate of 81%.

The questionnaire consisted of 40 items that focused on the probability of the preschool experience to increase appropriate skill levels, extinguish undesirable behavior, and to determine the respondents' general attitudes about handicapped children. That questionnaire is included as Appendix E. Respondents were to identify their degree of agreement or disagreement on a five point Likert type scale.

As with the instruments for the two previous questions, this questionnaire consisted of half positive and half direct opposite, negative items. Again, 20 pairs of like, but opposing questions, were rescaled into a 10 point scale for each of the 20 new items. Coefficient alphas were again calculated for a measure of internal consistence. Since subjects were combined into one group, no between group comparisons were made.

Results

Table 15 presents the means, standard deviations and coefficient alphas for the 20 paired questionnaire items. The coefficient alphas for each of the 20 items range from .148 to .909, with most of the coefficients occurring in the 50's and 60's. Thus, the internal consistency for this questionnaire was considerably lower than for the questionnaires in Questions 3 and 4, but still in the moderate range.

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Insert Table 15 about here

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Of the 20 newly constructed items for the questionnaire, 11 received mean rating of 8 points or more (10 points maximum), indicating the respondents strong agreement with those items. Three of those statements received mean ratings above 9 points; included there were agreements that: 1) pre-

schools can be effective in producing skill acquisition in handicapped children as young as one year; 2) there is a definite role for parent involvement in their children's educational process; 3) respondents would be willing to indicate their support for preschool programs for the handicapped to local school boards. On the other hand, two items received comparatively low mean ratings of 6.143 and 6.486 points. Those respectively indicated that current teachers: 1) perceived the information they received about students from those students preschool teachers to be of moderate value; and 2) perceived only slightly greater acceptance of the school age handicapped child by his peers if he/she had attended a preschool program. Collectively, however, the composite of these item ratings is very supportive of preschool education and teachers beliefs in its benefits for young handicapped children.

## CHAPTER 4

## Summary and Discussion

As stated previously, the primary purpose of this study was to examine, in a post hoc fashion, skill performance data available on selected trainable mentally retarded (TMR) children in the State of Oregon in an effort to determine if there are longitudinal effects of those children having been enrolled in a preschool program. In addition, instructional variables that seem to be accounting for skill gains, teacher perceptions of skill gains of preschool and non-preschool experienced children, parent perceptions of preschool and non-preschool experienced children, and general teacher attitudes about the effects of preschool experiences on handicapped children were examined. The purpose of this chapter is to discuss further the interpretations and implication of the findings. The discussion will follow the five research questions initially asked in this study.

In Chapter 1, it was established: 1) that preschool programs have been shown to have immediate impact upon the skill performances of disadvantaged and mildly handicapped children; 2) that although those preschool benefits may "wash out" after a moderate period of time (3-4 years), those benefits may likely reappear after 7-8 years; 3) that most of the cited literature in the field has used disadvantaged or mildly handicapped children as subjects in those studies; 4) that instructional variables have been shown to relate to demonstrated skill acquisition of children; and 5) that educators and parents respond favorably to preschool programs and their effects on student performance.

Preschool benefits maintained following the preschool experience

The results of this study have shown that enrollment of TMR children in a preschool program has significant impact on those children's later development. Five major curricular areas (social, language, academic, self-help, and motor skills) were examined as a function of children having attended 0-, 1- or 2-years-of-preschool.

The repeated measures ANOVA results indicated a significant main effect for preschool experience in the academic and motor curricular areas, as measured by the Student Progress Record (SPR). Between group contrasts indicated that in both the academic and motor development areas, those students who had been enrolled in a preschool program for two years were, as a group, scoring substantially higher than were students of similar age and with comparable handicapping conditions that had been enrolled in a preschool program only one year or not at all. Those children with one year of preschool experience, in turn, generally scored higher than children with no preschool experience.

A second trend was observed in which differences between the scores for the preschool children tended to accelerate more rapidly over years in school age programs than did the no preschool children's scores. Consequently, the net result is that with increased years in which those groups stay in school age TMR classrooms, the spread between the preschool experienced children's academic and motor develop skills and of those children that were not enrolled in a preschool program continues to increase.

No significant preschool intervention effects were found in the areas of social, language and self-help skills, although the same general preschool intervention and separation of scores effects were observed in these areas.

One substantial bearing on the data analyses were the rather large standard deviations that were found in virtually every subgroup of the study sample. In few instances were the standard deviations less than one-half the values of the respective cell means. More frequently, the standard deviations were over one-half the size of, and in a few instances exceed the means for those cells. The distribution of individual scores within those cells usually showed several very low scores with the remaining scores distributed over the middle to upper ranges of the respective measures for curricular areas. Obviously, the rather large standard deviations reduced the likelihood for obtaining additional significant differences, particularly with the more stringent group contrasts (Tallmadge and Horst, 1975). However, variability within handicapped populations of comparable etiologies is not uncommon.

A second explanation for the lack of significant differences between preschool and non-preschool children in the social, language and self-help areas may be due the emphasis that skills in these particular areas receive at home. Certainly, one would expect parents to concentrate more on skills taught to their children in these areas, as opposed to academic and specific motor development skills. The latter skills are most generally left for the educational environment.

A third potential reason for not finding significant preschool versus non-preschool differences in the social, language and self-help curricular areas may be due to a classroom selection process of children which occurs generally at approximately six to seven years of age. TMR children are at this time finishing a preschool program sponsored by the Oregon Mental Health Division. In the Fall of 1977, 86 developmentally disabled children were placed into public school age programs out of preschool programs (Barker, 1979). Of those 86 children 31 were placed in educational environments less restrictive than the traditional TMR classroom. The less restric-

tive placements include educational resource rooms, classes for the educably mentally retarded and regular classrooms. The remaining 55 children were placed in more traditional TMR classrooms.

Those children from the preschool programs placed in the less restrictive programs were reported to be higher functioning children. Further, those children not enrolled in the preschool program have traditionally been placed into TMR classes (Barker, 1979). Consequently, the higher functioning children graduating from preschool developmental disabilities programs and into less restrictive environments are likely removing the higher functioning children from the preschool experienced samples. Thus, the overall degree of differential performance of the children who have had the preschool, compared to those with no preschool experience, is surely reduced. Had the children who had previously been in a preschool program and then placed in a less restrictive educational environment, also been administered the SPR while in those more normalized settings, differences reported in the current study may have been more pronounced.

The power of the preschool intervention may also be compared to that of CA for main effects. Whereas the impact of preschool was demonstrated statistically on two of five curricular areas (academic and motor), CA was a significant factor in only one area (academics). One might anticipate that CA, or the maturational process would be a powerful determiner of functional level. However, while the contrast for the single significant CA results yielded significance between group contrasts, the fact that the preschool experience contributed to two areas in which significant differences were found suggest that CA is not as powerful a determiner of general functioning as is whether the child attended a preschool program or not. Tests for between CA group differences of educational significance in academics revealed that, in most instances, 11-year-olds scored higher as a group than did 10-year-olds, who in turn scored higher than did 9-year-olds.

Further support for the effect of preschool was found in the significant interactions of the preschool and CA factors in the social and academic areas. In each case, inspection of the cell and marginal means for preschool groups indicated that it was primarily the 2-years-of-preschool group that was undoubtedly accounting for the acceleration in skill and thus, interactive effects.

In summary, the longitudinal results of the current study suggest that preschool experiences do have an impact on the later skill performance levels of TMR children. What's more, the data suggest that the more years of preschool a TMR child had, the greater the skill gains. This point seemed particularly relevant given the severity of the handicaps of the current sample when compared to the samples of other reported preschool intervention studies, with samples of less handicapped children. Further, the results of this study suggest that the benefits of the preschool experience, at least with moderate to severely handicapped children, may become increasingly apparent at three-to five years following the preschool experience.

Post preschool setting features maintaining/increasing preschool benefits

A total of 14 variables were entered into a forward stepwise multiple regression equation with skill scores in the social, language, academic, self-help, and motor areas. The variables that continually accounted for the greatest amount of variance in skill scores across the five curricular areas were: 1) the frequency with which individual instructional programs were updated each week, 2) the amount of time a child spent in group instruction (with his/her own particular program planned within that group setting), 3) the amount of time a child was involved in individual instruction, and

4) the accuracy of the instructional staff in delivering predetermined cues and consequences to the child during instruction. While the results from a similar regression analysis (Fredericks et al, 1977) are not precisely replicated by the current study, the results from the two studies are rather complementary. The four variables determined by Fredericks, et al, (1977) to be accounting for the greatest skill gain scores in Oregon's school age TMR students were: 1) the length of the instructional day (amount of instruction), 2) percent of instructional programs task analyzed, 3) the delivery of consequences during instruction by the volunteer, and 4) appropriate consequence delivery of teacher and aide.

The results of the current study are also in concert with the general variables that have been attributed to successful preschool programs serving the disadvantaged and mildly handicapped. As Weikart (1971) suggests, the two most important global features of effective preschool programs appear to be planning and supervision. The results of the current study, along with those of Fredericks, et al, (1977) suggest that the specifics of the planning and supervision element are maximizing instructional time, appropriate delivery of cues and consequences, and collecting and updating instructional data.

Lillie (1975) has suggested that " . . . more rewarding [preschool] studies will begin to emerge as research practices evolve to the point of looking at distinct features of various curriculum approaches and their effect on behavior . . ." (p. 13). The current results accompanied by that of Baldwin and Fredericks (1979) have also demonstrated that training in the Teaching Research Infant and Child Center model can produce qualitative instructional improvement in teacher skills that subsequently result in improved student performance. Those results, however, were

obtained with school age children. An extension of Lillie's (1975) point, given the results of the current study and those of Fredericks and his colleagues, would be to examine the joint effects of training in the Teaching Research approach for teachers and whether or not a child had had a preschool experience.

The child's responses to his/her post preschool environment and the environment response to that child

A questionnaire was sent to teachers of school age TMR students in the State of Oregon, who during school year 1976-77 had two children in their classrooms, one of which had been enrolled in a preschool program, both with comparable CA and degree of mental, motor, visual, and hearing impairments. The questionnaire resulted in 24 behavioral descriptors on which teachers indicate the extent to which those statements described the behavior of both (preschool and non-preschool) paired children.

The analyses of teacher responses to that questionnaire failed to yield a single item, among the total of 24, on which teachers differentially rated children who had attended preschool as compared to those who had not. One item, the magnitude of perceived skill acquisition of the children approached significance ($p < .058$) with the children who had attended preschool receiving higher scores than those children who had not. If indeed preschool experiences do make a difference in post-preschool performance of TMR children, as reported previously in this chapter, then the failure of teachers to note those differences is likely due to one of many factors. First, there is the possibility that the items on the questionnaire lacked the clarity and/or precision to allow for existing difference to be determined. Perhaps, the items were not specific enough to detect difference

that existed, but were not included on or within the items on the questionnaire.

A second possible cause in the failure to obtain significant differences may well be due to the teachers' inability to accurately determine current functional levels. Moore (1979) reports that existing parent training data have shown that parents are less sensitive to performance changes in children with whom they are working than is suggested by the instructional program data. Perhaps the teachers are simply unable to detect existing differences that may well be borne out by more detailed analysis of individual item analysis of items on the SPR.

Parent perceptions of children who have and have not attended preschool

A similar questionnaire to that discussed in the previous section was sent to parents of TMR children who had and had not attended preschool. The children selected were again matched on CA and degree of handicapping condition. Thus, parents of children who had attended preschool were responding to the questionnaire in reference to their own children, while parents of children who had not attended preschool responded in reference to their children, each of which had been matched to a child in the other group.

Responses from the two groups of parents revealed that of the 24 items for between group comparisons, parents of children who had attended a preschool responded significantly different than did parents in the no-preschool group. Specifically, parents of the preschool group indicated that they believed a child enrolled in a preschool program would develop more self-help skills, would subsequently be less of a physical drain on his parents' energies, and would not provoke any more anger than would his/her non-handicapped peers.

Clearly, the first two results, more self-help skills and lessening of a physical drain, are reflective of the perceived skill increases associated with having attended the preschool. Whether the child who has attended a preschool and indeed produces less anger in his/her parents than do peers is yet to be resolved. The perceived reduction may have come about as a result of actual decreases in inappropriate behavior on the part of the child. That perception, however, may also have resulted from an increased tolerance level acquired by the parents, or by training parents of children in the preschool setting.

In addition to the above parent perceived benefits of the preschool experience, response patterns also clearly revealed that parents believe that preschools are beneficial to children attending, that the parents support the establishment of preschool programs, and would encourage other parents of handicapped children to enroll their children in such programs.

Teachers attitudes about preschool programs and children who attended those programs

Finally, general attitudes were surveyed regarding the preschool child's current teacher. The questionnaire addressed the issue of how the current teachers of TMR children, who had been in a preschool setting, viewed the educational readiness of the preschool child, i.e., preschools effect on increasing skill levels, extinguishing undesirable behaviors and some general teacher attitudes regarding children in the classroom who had attended a program for the preschool handicapped. Results suggested that teachers believed that preschools can be effective in producing skill acquisitions in young handicapped children, that parents have a definitive role in their child's educational programs and that they would support preschool education in their districts if asked to do so.

Likewise, two items were rated as having little value. Teachers felt that information received about a preschool child from his/her preschool program was of little value for educational programming purposes and that acceptance of a handicapped child by peers was not necessarily tied to whether that child had attended a preschool program.

These results are interesting to some extent because they reflect a paradoxical opinion. On one hand, teachers of school age handicapped children are willing to support preschool programs probably because they believe preschools are effective in producing skill acquisition in children. Those same teachers, however, also believe that the preschool teacher provides them with little useful information for instructional purposes. Further, those teachers to not believe that social skills are sufficiently increased to help toward noticeable peer acceptance. Paradoxically, if preschool programs effect skill acquisition, it should likewise effect socialization and therefore be noticeable in the preschool experienced child. Teachers, however, failed to indicate that this is true. If skill acquisition is increased, how do teachers come to this conclusion if the data they receive from the preschool program is of little value?

The difficulty in this issue may again lie with the questionnaire. Specific questions were not asked regarding the information which is provided to a teacher by the preschool program. It could be expected that some of the information is highly relevant and some information is not. If the questionnaire had asked about specific types of information which were provided to the teacher, data may have revealed that skill acquisition was considered very worthwhile, and therefore allowed the teacher to make an objective judgement about a preschool program's effect on skill acquisitions.

It is sufficient to say, then, as a result of these data, that Oregon teachers to feel strongly about the benefits of preschool programs and that they will support these programs if so asked. That support is a positively supportive statement in and of itself, and lends further credence to the growing consciousness of providing preschool experiences to handicapped children.

In summary, this study has demonstrated that preschool experiences can and do make an impact on TMR student performance in school performance. It has also shown that 3-4 specific variables in the instructional process account for a great deal of the variance in measured performance. While teachers have difficulty in identifying preschool and non-preschool experienced students based upon perceived performance levels, teachers are, however, very supportive of preschool programs and their potential impact on students. Finally, parents view the preschool experience as accelerating skill development, and produces skills to deal with the physical/psychological strain on the parents.

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Table 1

Distribution of Sample Children Across Years of Preschool and Age Groups

| Age Group (in months) | Years of Preschool 0 | 1 | 2 | Total |
|---|---|---|---|---|
| 90 - 109 | 22 | 11 | 19 | 52 |
| 110 - 127 | 21 | 12 | 17 | 50 |
| 128 - 145 | 25 | 12 | 12 | 49 |
| TOTALS | 68 | 35 | 48 | 151 |

Table 2

Means and Standard Deviations of Chronological Ages and Handicapping Condition for Age Groups

| Age Groups | CA | MR | MD | HI | VI |
|---|---|---|---|---|---|
| 9-Year-Olds (n=52) $\bar{x}$ | 103.6 | 4.365 | 1.538 | 1.154 | 1.019 |
| (Up to 109 mos.) SD | 6.243 | .653 | .609 | .500 | .370 |
| 10-Year-Olds (n=50) $\bar{x}$ | 119.8 | 4.300 | 1.560 | 1.340 | 1.120 |
| (110 - 127 mos.) SD | 5.566 | .931 | .760 | .479 | .328 |
| 11-Year-Olds (n=49) $\bar{x}$ | 133.9 | 4.429 | 1.735 | 1.163 | 1.122 |
| (128 - 145 mos.) SD | 3.791 | 816 | .785 | .553 | .484 |

Table 3

Means and Standard Deviations of Chronological Age and Handicapping Conditions for No-and Pre-School Groups

| | CA | MR | MD | HI | VI |
|---|---|---|---|---|---|
| 0 Years (n=68) $\bar{x}$ | 120.5 | 4.338 | 1.809 | 1.221 | 1.118 |
| SD | 12.452 | .908 | .833 | .542 | .474 |
| 1 Year (n=35) $\bar{x}$ | 118.5 | 4.543 | 1.486 | 1.086 | 1.029 |
| SD | 15.219 | .701 | .612 | .445 | .382 |
| 2 Years (n=48) $\bar{x}$ | 116.5 | 4.271 | 1.417 | 1.313 | 1.083 |
| SD | 13.618 | .707 | .539 | .512 | .279 |

Table 4

Means and Standard Deviations of Curricula Areas for Age by Years-of-Preschool Groups at $T_1$

| Group | Curricular Area | | | | |
|---|---|---|---|---|---|
| | Social | Language | Academics | Self-Help | Motor |
| **0 - Years Preschool** | | | | | |
| 9-Year-Olds $\bar{x}$ | 18.136 | 62.909 | 30.455 | 46.591 | 59.091 |
| (n=22) SD | 8.914 | 33.365 | 32.490 | 22.776 | 27.020 |
| 10-Year-Olds $\bar{x}$ | 19.476 | 70.095 | 55.619 | 45.810 | 56.762 |
| (n=21) SD | 11.466 | 40.244 | 52.545 | 25.926 | 36.400 |
| 11-Year-Olds $\bar{x}$ | 16.080 | 56.760 | 52.760 | 35.720 | 39.720 |
| (n=25) SD | 9.768 | 44.223 | 64.565 | 26.542 | 34.608 |
| **1 - Year Preschool** | | | | | |
| 9-Year-Olds $\bar{x}$ | 8.636 | 29.909 | 9.727 | 26.818 | 44.818 |
| (n=11) SD | 8.334 | 33.134 | 28.681 | 20.760 | 20.238 |
| 10-Year-Olds $\bar{x}$ | 24.000 | 55.667 | 28.667 | 49.167 | 61.833 |
| (n=12) SD | 22.720 | 34.833 | 41.701 | 17.135 | 24.345 |
| 11-Year-Olds $\bar{x}$ | 21.583 | 79.583 | 133.000 | 54.636 | 71.167 |
| (n=12) SD | 9.558 | 41.236 | 176.338 | 21.129 | 25.813 |
| **2 - Years Preschool** | | | | | |
| 9-Year-Olds $\bar{x}$ | 19.421 | 67.273 | 31.842 | 45.526 | 62.526 |
| (n=19) SD | 7.206 | 30.142 | 31.756 | 15.298 | 23.745 |
| 10-Year-Olds $\bar{x}$ | 15.588 | 58.706 | 35.353 | 42.235 | 57.471 |
| (n=17) SD | 10.032 | 39.033 | 60.184 | 21.209 | 25.113 |
| 11-Year-Olds $\bar{x}$ | 20.917 | 82.500 | 80.250 | 53.667 | 73.917 |
| (n=12) SD | 7.192 | 30.243 | 121.094 | 18.778 | 19.583 |

Table 5

Means and Standard Deviations of Curricula Areas for Age by Years-of-Preschool Groups at $T_2$

| Group | Curricular Area | | | | |
|---|---|---|---|---|---|
| | Social | Language | Academics | Self-Help | Motor |
| | 0 - Years Preschool | | | | |
| 9-Year-Olds $\bar{x}$ | 20.545 | 74.524 | 49.182 | 50.818 | 61.455 |
| (n=22) SD | 8.819 | 36.094 | 52.906 | 10.731 | 27.827 |
| 10-Year-Olds $\bar{x}$ | 20.048 | 73.476 | 76.143 | 49.190 | 61.667 |
| (n=21) SD | 11.249 | 40.310 | 73.737 | 25.711 | 34.738 |
| 11-Year-Olds $\bar{x}$ | 14.920 | 58.960 | 80.640 | 38.160 | 42.125 |
| (n=25) SD | 10.862 | 44.875 | 99.785 | 28.303 | 36.037 |
| | 1 - Year Preschool | | | | |
| 9-Year-Olds $\bar{x}$ | 10.909 | 34.182 | 10.636 | 33.273 | 51.091 |
| (n=11) SD | 10.251 | 38.423 | 24.671 | 21.804 | 32.281 |
| 10-Year-Olds $\bar{x}$ | 19.417 | 60.667 | 28.500 | 51.417 | 63.500 |
| (n=12) SD | 8.775 | 38.315 | 57.194 | 18.377 | 28,369 |
| 11-Year-Olds $\bar{x}$ | 20.833 | 78.667 | 148.917 | 53.000 | 73.083 |
| (n=12) SD | 10.426 | 42.027 | 186.722 | 23.297 | 29.312 |
| | 2+ Years Preschool | | | | |
| 9-Year-Olds $\bar{x}$ | 21.158 | 77.737 | 67.789 | 51.737 | 70.789 |
| (n=11) SD | 8.401 | 32.564 | 65.706 | 14.602 | 25.357 |
| 10-Year-Olds $\bar{x}$ | 18.000 | 67.118 | 59.824 | 51.529 | 65.529 |
| (n=12) SD | 10.886 | 35.240 | 89.402 | 19.310 | 24.208 |
| 11-Year-Olds $\bar{x}$ | 24.750 | 82.583 | 125.250 | 55.667 | 85.000 |
| (n=12) SD | 7.677 | 31.796 | 146.751 | 20.535 | 36.544 |

Table 6

Means and Standard Deviations of Curricula Areas for Age by Years-of-Preschool Groups at $T_3$

| Group | Curricular Area | | | | |
|---|---|---|---|---|---|
| | Social | Language | Academics | Self-Help | Motor |
| **0 - Years Preschool** | | | | | |
| 9-Year-Olds $\bar{x}$ | 20.227 | 71.773 | 70.136 | 51.318 | 65.591 |
| (n=22) SD | 10.099 | 38.149 | 83.045 | 24.332 | 33.572 |
| 10-Year-Olds $\bar{x}$ | 20.143 | 77.476 | 106.571 | 51.048 | 62.333 |
| (n=21) SD | 11.659 | 42.950 | 97.250 | 26.684 | 37.510 |
| 11-Year-Olds $\bar{x}$ | 15.417 | 62.400 | 108.240 | 40.640 | 43.520 |
| (n=25) SD | 12.197 | 45.164 | 118.328 | 29.615 | 35.531 |
| **1 - Year Preschool** | | | | | |
| 9-Year-Olds $\bar{x}$ | 11.909 | 34.636 | 15.455 | 37.273 | 54.727 |
| (n=11) SD | 11.493 | 39.953 | 24.431 | 27.728 | 34.526 |
| 10-Year-Olds $\bar{x}$ | 20.333 | 67.917 | 69.833 | 55.500 | 62.833 |
| (n=12) SD | 9.403 | 36.455 | 97.553 | 20.246 | 28.689 |
| 11-Year Olds $\bar{x}$ | 18.250 | 82.500 | 184.833 | 55.167 | 76.083 |
| (n=12) SD | 10.402 | 39.640 | 201.385 | 21.628 | 33.459 |
| **2+ Years Preschool** | | | | | |
| 9-Year-Olds $\bar{x}$ | 22.368 | 81.000 | 120.654 | 58.684 | 75.842 |
| (n=19) SD | 8.467 | 32.721 | 115.278 | 14.330 | 28.137 |
| 10-Year-Olds $\bar{x}$ | 17.824 | 69.118 | 109.588 | 54.235 | 71.529 |
| (n=17) SD | 10.418 | 35.286 | 132.159 | 20.993 | 27.550 |
| 11-Year-Olds $\bar{x}$ | 24.417 | 87.917 | 170.333 | 61.000 | 89.500 |
| (n=12) SD | 7.366 | 27.447 | 185.441 | 21.153 | 38.547 |

Table 7

Summary of ANOVA Tests for the Main Effect
of Preschool, CA and Preschool X CA by Curricular Area

| | df | F | p |
|---|---|---|---|
| Preschool | | | |
| Social | 6,280 | 1.267 | .273 |
| Language | 6,280 | 1.022 | .199 |
| Academics | 6,280 | 2.830 | .011* |
| Self-Help | 6,280 | 1.901 | .081 |
| Motor | 6,280 | 2.349 | .031* |
| CA | | | |
| Social | 6,280 | .580 | .746 |
| Language | 6,280 | 1.624 | .140 |
| Academics | 6,280 | 2.332 | .033* |
| Self-Help | 6,280 | 1.129 | .346 |
| Motor | 6,280 | .328 | .922 |
| Preschool X CA | | | |
| Social | 12,371 | 2.097 | .017* |
| Language | 12,371 | 1.510 | .118 |
| Academic | 12,371 | 1.109 | .351 |
| Self-Help | 12,371 | 1.747 | .056 |
| Motor | 12,371 | 1.244 | .251 |

* Indicates F values at least of .05 significance level.

Table 8

Cell, Marginal and Grand Means for Preschool and CA Level Across Time

| CA (mos.) | Years of Preschool: 0 $\bar{x}$ | 0 SD | 1 $\bar{x}$ | 1 SD | 2 $\bar{x}$ | 2 SD | Marginal $\bar{x}$ | Marginal SD |
|---|---|---|---|---|---|---|---|---|
| **Social** | | | | | | | | |
| 90 - 109 | 19.636 | 8.359 | 10.485 | 9.711 | 20.983 | 7.385 | 18.192 | 9.117 |
| 110 - 127 | 19.889 | 11.193 | 21.250 | 11.700 | 17.137 | 10.027 | 19.280 | 10.835 |
| 128 - 145 | 15.707 | 10.764 | 20.222 | 9.571 | 23.361 | 7.007 | 18.687 | 10.043 |
| Marginal | 18.270 | 10.231 | 17.514 | 11.188 | 20.215 | 8.532 | 18.713 | 10.232 |
| **Language** | | | | | | | | |
| 90 - 109 | 75.530 | 42.378 | 32.909 | 36.840 | 75.333 | 31.103 | 66.442 | 40.677 |
| 110 - 127 | 73.683 | 40.770 | 61.417 | 35.580 | 64.980 | 35.734 | 67.780 | 37.512 |
| 128 - 145 | 59.373 | 44.233 | 80.250 | 40.673 | 84.333 | 29.605 | 70.597 | 41.162 |
| Marginal | 69.020 | 42.607 | 58.914 | 41.541 | 73.917 | 32.676 | 68.234 | 39.591 |
| **Academics** | | | | | | | | |
| 90 - 109 | 49.924 | 49.149 | 11.939 | 25.001 | 73.439 | 68.498 | 50.481 | 57.359 |
| 110 - 127 | 79.444 | 66.906 | 45.667 | 64.028 | 68.255 | 90.907 | 67.533 | 74.993 |
| 128 - 145 | 80.547 | 91.626 | 155.583 | 186.490 | 125.278 | 148.835 | 109.878 | 139.181 |
| Marginal | 70.299 | 72.817 | 72.752 | 128.992 | 84.563 | 101.804 | 75.402 | 97.096 |
| **Self-Help** | | | | | | | | |
| 90 - 109 | 49.579 | 20.976 | 48.683 | 25.628 | 38.173 | 27.559 | 46.833 | 20.284 |
| 110 - 127 | 32.455 | 22.830 | 52.028 | 17.742 | 55.389 | 21.992 | 49.707 | 21.355 |
| 128 - 145 | 51.983 | 14.118 | 49.333 | 18.804 | 56.778 | 19.748 | 46.946 | 25.780 |
| Marginal | 45.108 | 25.190 | 47.029 | 22.668 | 52.243 | 17.214 | 47.821 | 22.416 |
| **Motor** | | | | | | | | |
| 90 - 109 | 62.046 | 27.590 | 50.212 | 31.663 | 69.719 | 24.684 | 62.346 | 27.877 |
| 110 - 127 | 60.254 | 34.786 | 62.722 | 23.687 | 64.843 | 23.722 | 62.407 | 28.420 |
| 128 - 145 | 48.253 | 45.836 | 73.444 | 26.933 | 82.806 | 34.113 | 62.884 | 41.497 |
| Marginal | 56.422 | 37.313 | 62.467 | 28.324 | 71.264 | 27.334 | 62.541 | 32.851 |

Table 9

Summary of ANOVA Tests for Constant and Linear Trends for Preschool and CA Groups by Curricular Area

| | df | F | p |
|---|---|---|---|
| Preschool | | | |
| Constant | | | |
| Social | 2,142 | .943 | .392 |
| Language | 2,142 | 1.634 | .199 |
| Academics | 2,142 | .728 | .485 |
| Self-Help | 2,142 | 1.496 | .228 |
| Motor | 2,142 | 3.044 | .051 |
| Linear | | | |
| Social | 2,142 | 2.649 | .074 |
| Language | 2,142 | .680 | .509 |
| Academics | 2,142 | 6.116 | .003* |
| Self-Help | 2,142 | 4.450 | .013* |
| Motor | 2,142 | 4.149 | .018* |
| CA | | | |
| Constant | | | |
| Social | 2,142 | .189 | .828 |
| Language | 2,142 | .228 | .797 |
| Academics | 2,142 | 5.759 | .004* |
| Self-Help | 2,142 | .250 | .779 |
| Motor | 2,142 | .065 | .937 |
| Linear | | | |
| Social | 2,142 | 1.522 | .222 |
| Language | 2,142 | 1.509 | .225 |
| Academics | 2,142 | .759 | .470 |
| Self-Help | 2,142 | 2.249 | .109 |
| Motor | 2,142 | .211 | .810 |

* Indicates F values at least of .05 significance levels.

Table 10

Variables Entered into the Forward Stepwise
Multiple Regression Analyses

| Number | Descriptor |
|---|---|
| 1 | Number of individual programs - social |
| 2 | Number of individual programs - language |
| 3 | Number of individual programs - academic |
| 4 | Number of individual programs - self-help |
| 5 | Number of individual programs - motor |
| 6 | Number of minutes to administer individual programs - social |
| 7 | Number of minutes to administer individual programs - language |
| 8 | Number of minutes to administer individual programs - academic |
| 9 | Number of minutes to administer individual programs - self-help |
| 10 | Number of minutes to administer individual programs - motor |
| 11 | Number of times individual programs administered each week - social |
| 12 | Number of times individual programs administered each week - language |
| 13 | Number of times individual programs administered each week - academic |
| 14 | Number of times individual programs administered each week - self-help |
| 15 | Number of times individual programs administered each week - motor |
| 16 | Number of individual programs administered in classroom and home - social |
| 17 | Number of individual programs administered in classroom and home - language |
| 18 | Number of individual programs administered in classroom and home - academic |
| 19 | Number of individual programs administered in classroom and home - self-help |
| 20 | Number of individual programs administered in classroom and home - motor |
| 21 | Number of group programs administered - social |
| 22 | Number of group programs administered - language |
| 23 | Number of group programs administered - academic |
| 24 | Number of group programs administered - self-help |
| 25 | Number of group programs administered - motor |
| 26 | Number of minutes to administer group program - social |
| 27 | Number of minutes to administer group program - language |
| 28 | Number of minutes to administer group program - academic |
| 29 | Number of minutes to administer group program - self-help |
| 30 | Number of minutes to administer group program - motor |
| 31 | Number of times programs are administered to group each week - social |
| 32 | Number of times programs are administered to group each week - language |
| 33 | Number of times programs are administered to group each week - academic |
| 34 | Number of times programs are administered to group each week - self-help |
| 35 | Number of times programs are administered to group each week - motor |
| 36 | Percentage of all programs administered to children from initial placement tests |
| 37 | Average per week child behavioral data collected for individual programs |
| 38 | Average per week individual programs updated |
| 39 | Percentage appropriate cues delivered by teacher |
| 40 | Percentage appropriate K delivered by teacher |
| 41 | Percentage appropriate cues delivered by aide |
| 42 | Percentage appropriate K delivered by aide |

Table 11

Classroom Instructional Variables and Their Critical Values from Forward Stepwise Multiple Regression on Commulative SPR Skill Gains

| Step | Predictor Variable | F Removed | P | Mult. R. | $R^2$ | $R^2$ Change |
|---|---|---|---|---|---|---|
| | | | Social | | | |
| 1 | 38 | 15.188 | .000 | .462 | .213 | .213 |
| 2 | 26 | 3.613 | .063 | .512 | .262 | .048 |
| 3 | 21 | 7.687 | .008 | .595 | .354 | .092 |
| 4 | 42 | 3.097 | .084 | .624 | .389 | .036 |
| 5 | 41 | 1.902 | .174 | .641 | .411 | .022 |
| | | | Language | | | |
| 1 | 38 | 11.500 | .001 | .413 | .170 | .170 |
| 2 | 27 | 8.559 | .005 | .531 | .282 | .112 |
| 3 | 2 | 2.675 | .108 | .562 | .316 | .034 |
| 4 | 39 | 3.357 | .073 | .597 | .357 | .041 |
| 5 | 12 | 2.977 | .090 | .626 | .392 | .035 |
| | | | Academic | | | |
| 1 | 8 | 27.585 | .000 | .574 | .330 | .330 |
| 2 | 28 | 4.516 | .038 | .617 | .387 | .051 |
| 3 | 40 | 1.637 | .206 | .632 | .399 | .018 |
| 4 | 13 | .906 | .346 | .640 | .409 | .010 |
| 5 | 18 | 1.245 | .270 | .650 | .423 | .014 |
| | | | Self-Help | | | |
| 1 | 38 | 14.663 | .000 | .455 | .208 | .208 |
| 2 | 14 | 11.964 | .001 | .591 | .349 | .142 |
| 3 | 24 | 1.921 | .171 | .609 | .371 | .022 |
| 4 | 4 | 1.070 | .306 | .620 | .384 | .012 |
| 5 | 40 | .832 | .366 | .627 | .394 | .009 |
| | | | Motor | | | |
| 1 | 30 | 14.285 | .000 | .451 | .203 | .203 |
| 2 | 5 | 7.143 | .010 | .543 | .295 | .092 |
| 3 | 38 | 12.129 | .001 | .652 | .424 | .129 |
| 4 | 39 | 4.881 | .032 | .688 | .473 | .049 |
| 5 | 41 | 1.526 | .222 | .698 | .488 | .015 |

Table 12

Classroom Instructional Variables and Their Critical Values from Forward Stepwise Multiple Regression on Annual SPR Skill Gains

| Step | Predictor Variable | F Removed | P | Mult. R. | $R^2$ | $R^2$ Change |
|---|---|---|---|---|---|---|
| | | | Social | | | |
| 1 | 37 | 3.900 | .053 | .255 | .065 | .065 |
| 2 | 42 | 4.316 | .042 | .365 | .133 | .068 |
| 3 | 41 | 2.424 | .413 | .413 | .170 | .037 |
| 4 | 38 | 1.637 | .442 | .442 | .195 | .025 |
| 5 | 25 | 2.678 | .484 | .484 | .235 | .039 |
| | | | Language | | | |
| 1 | 22 | 10.399 | .002 | .396 | .157 | .157 |
| 2 | 17 | 3.567 | .064 | .456 | .208 | .051 |
| 3 | 37 | 3.056 | .086 | .500 | .250 | .042 |
| 4 | 42 | 3.933 | .053 | .053 | .302 | .052 |
| 5 | 39 | 2.569 | .115 | .115 | .335 | .033 |
| | | | Academics | | | |
| 1 | 28 | 6.598 | .013 | .325 | .105 | .105 |
| 2 | 39 | 3.757 | .058 | .403 | .163 | .057 |
| 3 | 8 | .746 | .392 | .417 | .174 | .011 |
| 4 | 3 | 1.097 | .300 | .437 | .191 | .017 |
| 5 | 36 | 1.050 | .310 | .455 | .207 | .016 |
| | | | Self-Help | | | |
| 1 | 29 | 17.252 | .000 | .485 | .236 | .236 |
| 2 | 40 | 5.384 | .024 | .551 | .304 | .068 |
| 3 | 41 | 4.741 | .034 | .600 | .360 | .056 |
| 4 | 39 | 6.041 | .017 | .652 | .425 | .066 |
| 5 | 24 | 4.660 | .036 | .687 | .473 | .047 |
| 6 | 37 | 2.963 | .091 | .708 | .502 | .029 |
| 7 | 36 | 5.747 | .020 | .744 | .553 | .051 |
| | | | Motor | | | |
| 1 | 40 | 2.707 | .105 | .215 | .046 | .046 |
| 2 | 41 | 1.267 | .265 | .260 | .068 | .021 |
| 3 | 38 | 1.964 | .167 | .317 | .100 | .033 |
| 4 | 37 | 1.504 | .226 | .354 | .125 | .025 |
| 5 | 25 | 1.159 | .287 | .380 | .144 | .019 |

Table 13

Teacher Ratings of Children's Performance Who Had and Had Not Previously Attended A Preschool Program

| | Variable | | Pre-Sch (n-52) | No Pre-Sch (n=52) | t (df=102) | p (1 tailed) | Rkk |
|---|---|---|---|---|---|---|---|
| 1 | In Seat | $\bar{x}$ | 7.269 | 7.346 | | | |
| | | SD | 2.539 | 2.384 | -.16 | .437 | .866 |
| 2 | Peer Friendship | $\bar{x}$ | 7.789 | 7.712 | | | |
| | | SD | 2.539 | 2.190 | .17 | .434 | .877 |
| 3 | Obtaining Attention | $\bar{x}$ | 6.846 | 6.962 | | | |
| | | SD | 1.830 | 2.086 | -.30 | .382 | .700 |
| 4 | Teacher Compliance | $\bar{x}$ | 7.000 | 7.058 | | | |
| | | SD | 2.077 | 2.146 | -.14 | .445 | .724 |
| 5 | Courtesy Responses | $\bar{x}$ | 6.269 | 6.404 | | | |
| | | SD | 2.442 | 2.362 | -.29 | .388 | .864 |
| 6 | Command Compliance | $\bar{x}$ | 7.077 | 6.904 | | | |
| | | SD | 2.028 | 2.098 | .43 | .335 | .728 |
| 7 | Frequent Reprimand | $\bar{x}$ | 6.308 | 6.442 | | | |
| | | SD | 2.263 | 2.508 | -.29 | .387 | .828 |
| 8 | Peer Activity | $\bar{x}$ | 7.481 | 7.346 | | | |
| | | SD | 2.128 | 2.018 | .33 | .371 | .658 |
| 9 | Shares Materials | $\bar{x}$ | 7.115 | 7.365 | | | |
| | | SD | 2.074 | 1.981 | -.63 | .266 | .748 |
| 10 | Uses Apologies | $\bar{x}$ | 5.423 | 5.750 | | | |
| | | SD | 2.190 | 2.274 | -.75 | .229 | .835 |
| 11 | Greeting Phrases (peer) | $\bar{x}$ | 7.827 | 7.846 | | | |
| | | SD | 2.439 | 2.304 | -.04 | .484 | .964 |
| 12 | Peer Talking | $\bar{x}$ | 7.769 | 8.039 | | | |
| | | SD | 2.211 | 1.680 | -.70 | .243 | .827 |
| 13 | Teacher Enjoyment | $\bar{x}$ | 8.404 | 4.192 | | | |
| | | SD | 1.729 | 2.000 | .58 | .283 | .596 |
| 14 | Tantruming (adults) | $\bar{x}$ | 6.962 | 7.192 | | | |
| | | SD | 2.086 | 1.837 | -.60 | .276 | .742 |
| 15 | Skill Development | $\bar{x}$ | 7.846 | 7.192 | | | |
| | | SD | 1.819 | 2.352 | 1.59 | .058 | .734 |
| 16 | Required Supervision | $\bar{x}$ | 6.827 | 7.039 | | | |
| | | SD | 2.194 | 2.258 | -.48 | .315 | .765 |
| 17 | Adult Interaction | $\bar{x}$ | 7.423 | 7.327 | | | |
| | | SD | 2.127 | 2.238 | .22 | .412 | .848 |
| 18 | Parallel Play | $\bar{x}$ | 7.981 | 7.827 | | | |
| | | SD | 1.590 | 1.790 | .46 | .322 | .722 |
| 19 | Tantruming (peers) | $\bar{x}$ | 7.019 | 7.269 | | | |
| | | SD | 2.110 | 2.030 | -.62 | .270 | .851 |
| 20 | Greeting Phrases (adult) | $\bar{x}$ | 8.135 | 8.135 | | | |
| | | SD | 2.105 | 1.879 | .00 | .500 | .866 |
| 21 | Physical Force | $\bar{x}$ | 6.423 | 6.462 | | | |
| | | SD | 2.042 | 2.062 | -.10 | .462 | .720 |
| 22 | Sulking/Withdrawl | $\bar{x}$ | 5.962 | 6.192 | | | |
| | | SD | 2.142 | 2.188 | -.54 | .294 | .832 |
| 23 | Distraction | $\bar{x}$ | 5.731 | 5.865 | | | |
| | | SD | 2.097 | 2.258 | -.32 | .377 | .759 |
| 24 | Assists Peers | $\bar{x}$ | 2.058 | 6.942 | | | |
| | | SD | 1.924 | 2.137 | .29 | .387 | .876 |

Table 14

Ratings of Child Performance by Parents of Children Who Had and Had Not Previously Been Enrolled in a Preschool Program

| | Variable | | Pre-Sch (n=35) | No Pre-Sch (n=35) | t (df=68) | p (1-tailed) | Rkk |
|---|---|---|---|---|---|---|---|
| 1 | More Self Help Skills | $\bar{x}$ | 8.114 | 7.256 | | | |
| | | SD | 2.083 | 1.964 | 1.71 | .046 | .309 |
| 2 | More Language Skills | $\bar{x}$ | 8.543 | 8.286 | | | |
| | | SD | 1.651 | 1.792 | .62 | .267 | .565 |
| 3 | Restricted Parents Friends | $\bar{x}$ | 8.286 | 8.486 | | | |
| | | SD | 1.964 | 1.931 | -.43 | .335 | .731 |
| 4 | Strict Authoritarian | $\bar{x}$ | 7.086 | 6.914 | | | |
| | | SD | 1.976 | 1.597 | .40 | .346 | .780 |
| 5 | Should Enroll Child | $\bar{x}$ | 8.486 | 8.200 | | | |
| | | SD | 1.634 | 1.762 | .70 | .242 | .527 |
| 6 | Preschools Are Appropriate | $\bar{x}$ | 7.571 | 7.800 | | | |
| | | SD | 1.852 | 2.098 | -.48 | .315 | .503 |
| 7 | Recommend Enrollment | $\bar{x}$ | 9.143 | 8.886 | | | |
| | | SD | 1.801 | 1.605 | .63 | .265 | .825 |
| 8 | Mobility Skills | $\bar{x}$ | 6.686 | 7.114 | | | |
| | | SD | 2.311 | 2.040 | -.82 | .207 | .830 |
| 9 | Prolonged Parenthood | $\bar{x}$ | 6.000 | 6.629 | | | |
| | | SD | 1.515 | 1.896 | -1.53 | .065 | .165 |
| 10 | Physical Drain | $\bar{x}$ | 6.114 | 7.514 | | | |
| | | SD | 2.259 | 2.147 | -2.66 | .005 | .820 |
| 11 | Happy but Supervised | $\bar{x}$ | 7.914 | 8.114 | | | |
| | | SD | 1.788 | 1.795 | -.47 | .321 | .640 |
| 12 | More Social Skills | $\bar{x}$ | 7.886 | 7.743 | | | |
| | | SD | 1.906 | 2.049 | .30 | .382 | .674 |
| 13 | Recognize Child's Potential | $\bar{x}$ | 8.400 | 8.400 | | | |
| | | SD | 1.612 | 1.519 | .00 | .500 | .720 |
| 14 | Eliminate Inappropriate Behaviors | $\bar{x}$ | 7.486 | 7.600 | | | |
| | | SD | 2.035 | 1.769 | -.25 | .402 | .704 |
| 15 | Anger Toward Handicapped Child | $\bar{x}$ | 6.457 | 7.914 | | | |
| | | SD | 2.005 | 1.805 | -3.20 | .001 | .618 |
| 16 | Advocate for Preschool | $\bar{x}$ | 8.886 | 8.714 | | | |
| | | SD | 1.827 | 1.888 | .39 | .351 | .821 |
| 17 | More Skills for Age | $\bar{x}$ | 7.171 | 7.314 | | | |
| | | SD | 1.618 | 1.795 | -.35 | .364 | .741 |
| 18 | Parents Learn from Teachers | $\bar{x}$ | 8.057 | 8.200 | | | |
| | | SD | 1.697 | 1.677 | -.35 | .362 | .689 |
| 19 | Public Establishments | $\bar{x}$ | 8.086 | 8.114 | | | |
| | | SD | 2.005 | 2.083 | -.06 | .477 | .691 |
| 20 | Too Much Time with Child | $\bar{x}$ | 7.114 | 7.171 | | | |
| | | SD | 1.795 | 2.093 | -.12 | .452 | .614 |
| 21 | Preschool Staff Available | $\bar{x}$ | 8.029 | 8.257 | | | |
| | | SD | 1.902 | 1.578 | -.55 | .293 | .752 |
| 22 | Informed by Preschool Staff | $\bar{x}$ | 8.257 | 8.486 | | | |
| | | SD | 1.704 | 1.337 | -.62 | .267 | .888 |
| 23 | Enjoy Child as much as Others | $\bar{x}$ | 8.286 | 8.229 | | | |
| | | SD | 1.824 | 2.276 | .12 | .454 | .843 |
| 24 | Well Being with Others | $\bar{x}$ | 6.429 | 6.514 | | | |
| | | SD | 2.317 | 2.188 | -.16 | .437 | .601 |

Table 15

Main Standard Deviation and Coefficient Alphas for Teacher Attitude Questionnaire

| | Variable (n=70) | $\bar{X}$ | SD | Rkk |
|---|---|---|---|---|
| 1 | Greater Self-Helf Skills | 7.757 | 1.324 | .464 |
| 2 | Greater Acceptance by Peers | 6.486 | .737 | .827 |
| 3 | Program Responsible for Child's Learning | 7.629 | 1.687 | .622 |
| 4 | Extinguish Behaviors Early | 7.886 | 1.222 | .467 |
| 5 | Greater Academic Skills | 7.400 | 1.366 | .681 |
| 6 | Eliminate Inappropriate Behaviors | 8.129 | 1.464 | .616 |
| 7 | Prefer Preschool Experienced Children | 8.557 | 1.281 | .591 |
| 8 | Parents Acquire Skills | 8.686 | 1.071 | .507 |
| 9 | Effective with Very Young | 9.329 | .793 | .401 |
| 10 | Adjusts to School Age Program | 7.900 | 1.253 | .472 |
| 11 | Learn from Non-Handicapped | 8.129 | 1.203 | .438 |
| 12 | Effects Language Skills | 8.000 | 1.155 | .585 |
| 13 | Parents Can Teach, Too | 9.071 | 1.068 | .571 |
| 14 | Curriculum Assures Instruction | 7.729 | 1.076 | .465 |
| 15 | Information from Preschool Teacher | 6.143 | 2.031 | .675 |
| 16 | Parents Get Other Benefits, Too | 8.829 | .963 | .148 |
| 17 | Child Learn Consequences | 8.671 | 1.046 | .626 |
| 18 | Preschool Accelerates Learning | 7.471 | 1.432 | .909 |
| 19 | Supports Preschool Education | 9.000 | 1.239 | .569 |
| 20 | Effects Later School Placement | 8.586 | 1.097 | .672 |

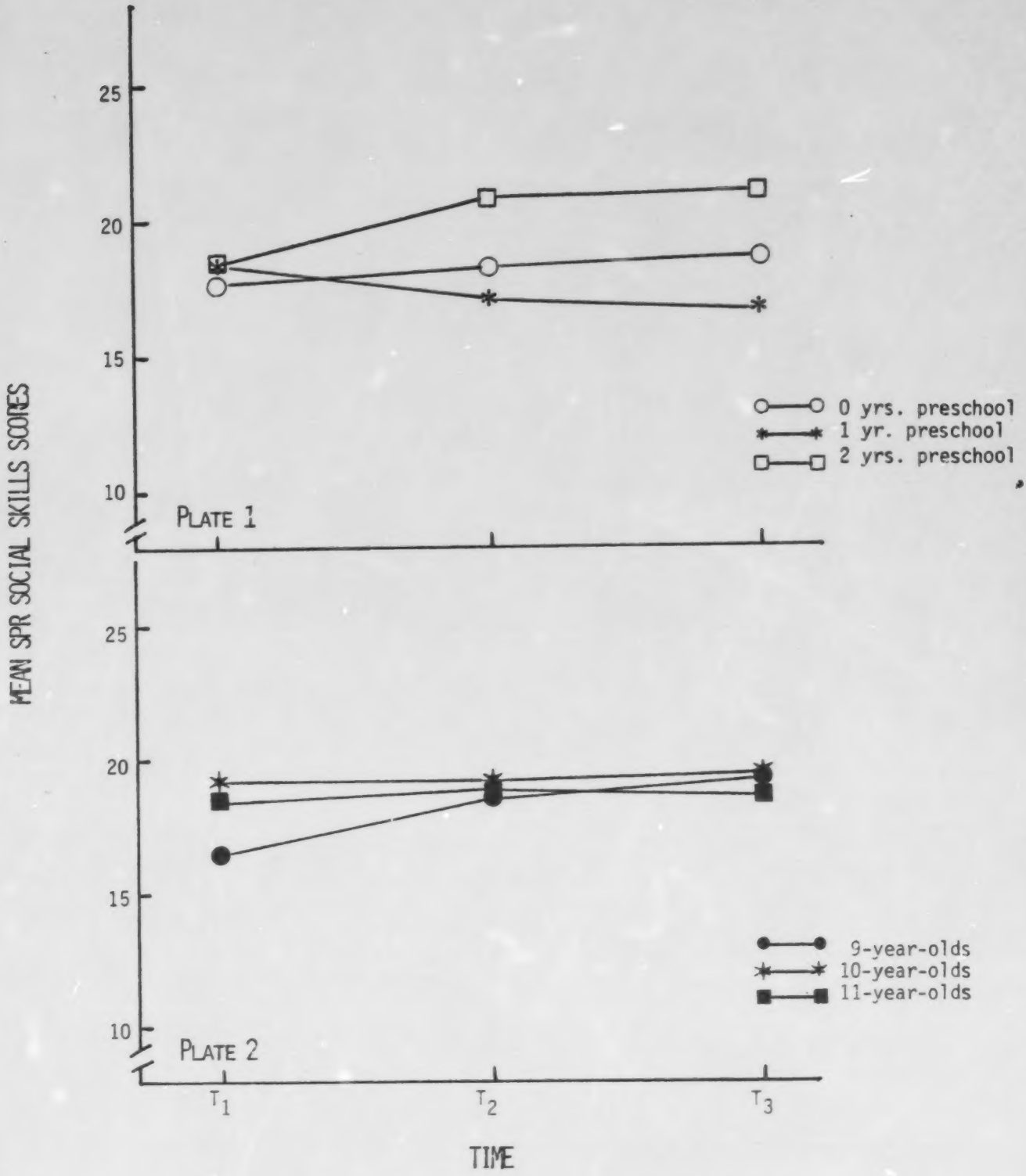


Figure 1. Mean social scores for preschool and CA groups across time.

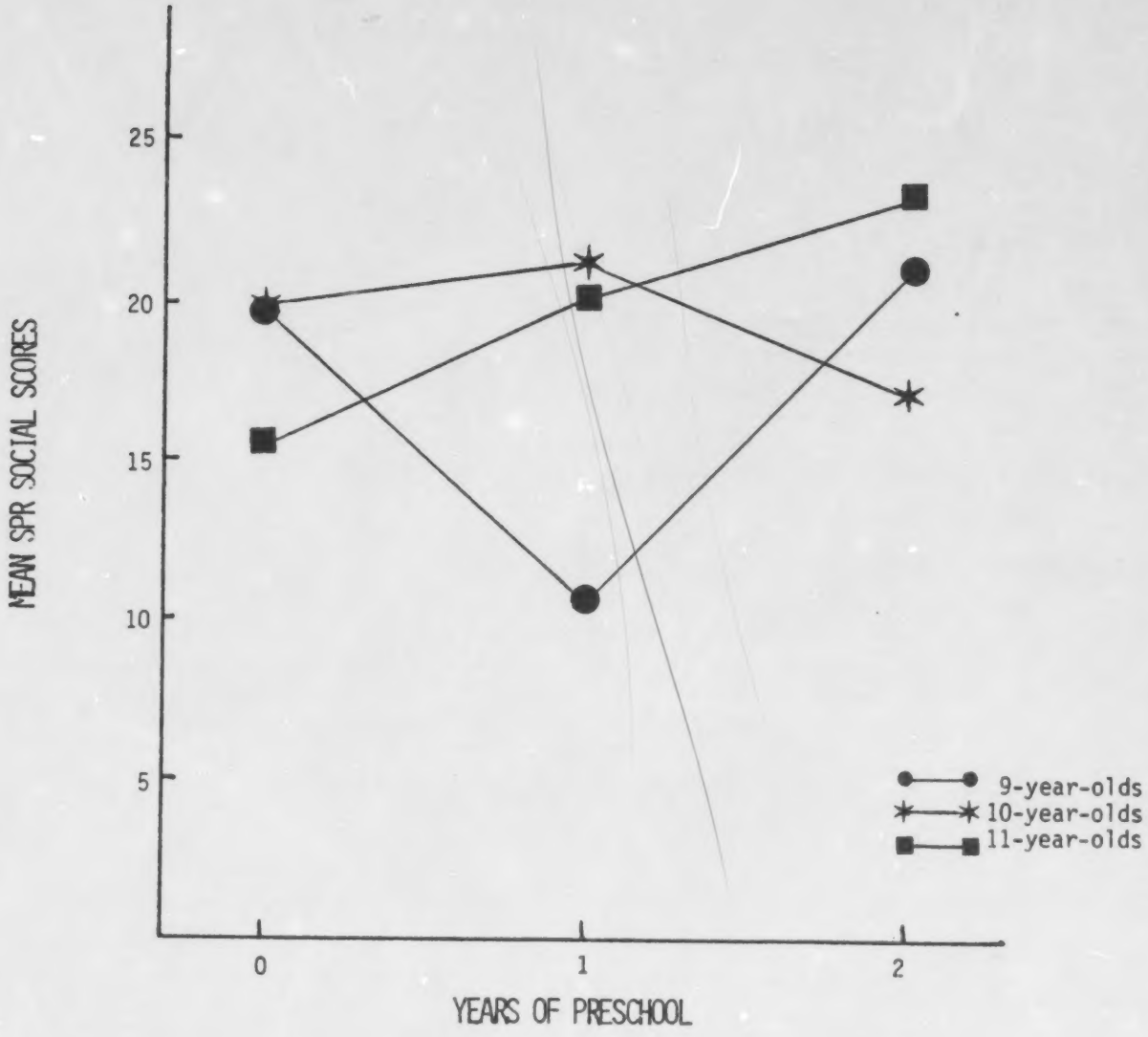


Figure 2. Mean social scores for CA groups by years of preschool.

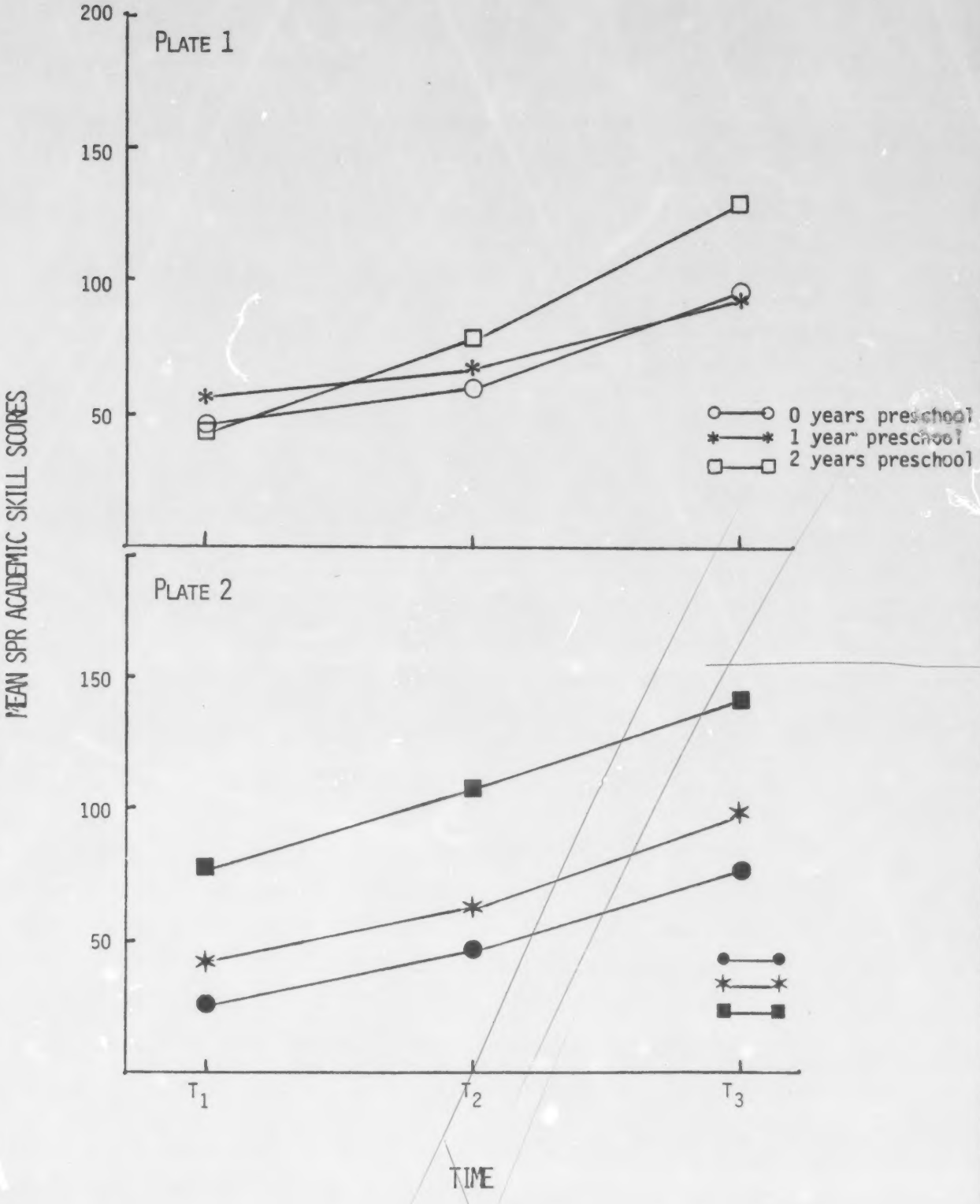


Figure 3. Mean academic scores for preschool and CA groups across time.

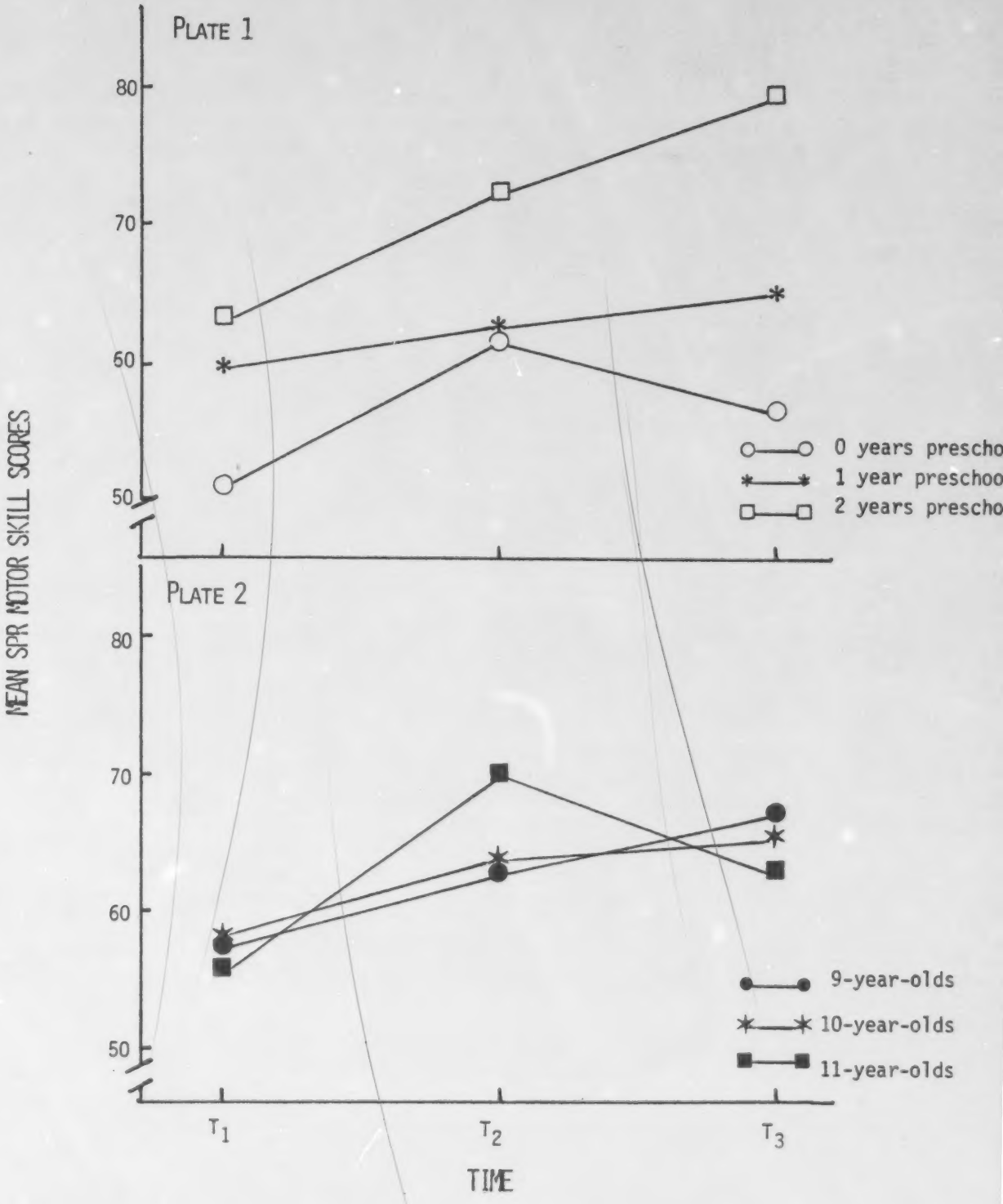


Figure 4. Mean motor scores for preschool and CA groups across time.

Appendix A

Note: If the teacher's name is incorrect, please correct. If a child listed below is no longer in this class, please indicate the current location of that child. Also, if there are additional children between the CA 6-10 years in this class, please add those children to the list and provide the appropriate characteristic information.

School District: Baker

Teacher: Elizabeth Dodge

| Child's Name | Was Child Enrolled in Preschool (CA = 6 years or younger)? | | | | FUNCTIONAL CHARACTERISTICS | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MENTAL RETARDATION | | | | | | MOTOR DYSFUNCTION | | | HEARING IMPAIRMENT | | | VISUAL IMPAIRMENT | | |
| | No | Yes | Yrs | Where | None | Borderline | Mild | Moderate | Severe | Profound | None | Mild | Severe | None | Mild | Severe | None | Mild | Severe |
| | | | | | | | | (check (✓) level of individual impairments.) | | | | | | | | | | | |
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Appendix B

School District _____
Teacher _____
Child _____

| | Curricular Area | | | | |
|---|---|---|---|---|---|
| | Social | Lang-uage | Academic | Self-Help | Motor |
| **Individual[1] Instruction** | | | | | |
| 1. Indicate, by curricular area[2], the number of WRITTEN individual programs currently administered to this child that specify instructional cues, terminal child behavior, criterion for acceptable child performance, appropriate adult feedback, and data collection procedures. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. Indicate, by curricular area[2], the number of minutes necessary to administer the programs (in #1 above) to this child. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. Indicate, by curricular area[2], the number of times that individual programs (in #1 above) are administered to this child each week. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. Indicate, by curricular area[2], the number of programs ( in #1 above) administered in this child's home. | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Group[3] Instruction** | | | | | |
| 5. Indicate, by curricular area[2], the number of group instructional programs currently administered in which this child is a member of that group(s). | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. Indicate, by curricular area[2], the number of minutes necessary to administer the program(s) (in #5 above) to the group. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. Indicate, by curricular area[2], the number of times that program(s) (in #5 above) are administered to the group(s) each week. | ☐ | ☐ | ☐ | ☐ | ☐ |

**General**

8. What percentage (0 to 100%) of ALL programs administered to this child were developed from initial placement tests (i.e., Student Progress Record, Teaching Research Placement Test, Behavioral Characteristics Profile, etc.)? _____%
   What placement test(s) was used? _____

| | | Days/Week | | | | |
|---|---|---|---|---|---|---|
| 9. | On the average, how many days per week are child behavioral data collected for individual programs administered to this child? | 1 | 2 | 3 | 4 | 5 |
| 10. | On the average, how many times (days) per week are individual programs updated based on this child's performance data. | 1 | 2 | 3 | 4 | 5 |

Footnotes

1. Individual Instruction: programs where each child is receiving an individual cue and consequence. Children could in groups, but each child must be receiving his own unique cue.

2. Definitions of the five major curricular areas are drawn from the skills measured by the Student Progress Record, i.e., Social-social skills; Language - Receptive Language and Expressive Language; Academic - reading, writing number, money, time; Self-Help - eating, dressing, personal hygiene; Motor-motor and physical fitness.

3. Group Instruction is defined as several children receiving the same cue and are expected to make similar responses.

Appendix C

Teaching Research Infant and Child Center

VOLUNTEER OBSERVATION FORM

TRAINEE _____ OBSERVER _____

PROGRAM _____ DATE _____

CHILD _____ TIME _____ TO _____

Observation Criterion: 90% Appropriate

Cues → ← Consequences →

| Cues | | | | | Consequences | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | APPROPRIATE | | INCORRECT CORRECTION PROCEDURE | | | | | FAIL TO CONSEQUATE | | INAPPROPRIATE | | | | DATA RECORDED |
| Appro-priate | No Cue | Weak | Change Wording | Repeated | Pos. | Punish | | No Cue | Help | Rein | | Pos. | Punish | Weak | Failure To Pair | Delayed (2 sec) | Reinf. Inapp. | I = Correct 0 = Incorrect |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

COVER SHEET INFORMATION:

1. Cue:
2. Behavior:
3. Reinforcer
4. Criterion:
5. Correction Procedure:

| | Yes | No |
|---|---|---|
| Teacher has correct materials | | |
| Materials, teacher and data are in best position for presentation | | |
| Teacher gets child's attention before beginning | | |
| Materials are presented so that child can see them and manipulate materials | | |

For scoring of Incorrect Correction Procedure mark once in box at left for incorrect correction procedure and for feedback to trainee mark under appropriate relative to error in correction procedure.

Cues: Appropriate / Total _____ %

Consequence: Appropriate / Total _____ %

Data: Appropriate / Total _____ %

Appendix D

Respondent #:

TR-TMR Questionnaire #1
1976-1977

INSTRUCTIONS: Below are a series of statements including behaviors that are periodically exhibited by students in programs for moderately and severely handicapped children. To the right of those statements are two boxes, each of which corresponds to the child whose name appears on the line at the top of the column. Carefully read each statement and indicate the extent to which you agree or disagree with the statement by writing in EACH box the abbreviation according to the code below. For example, if you DISAGREE with a statement as it applies to one student, write D in the box for that student for that item; if you STRONGLY AGREE with that statement as it applies to the other child, write SA in the box for that student for that item. Although certain items may seem redundant, please mark every item. When you are finished, you should have written a letter code in EVERY BOX for EACH child.

SD - I strongly disagree

D - I disagree

U - I'm undecided

A - I agree

SA - I strongly agree

| | | | |
|---|---|---|---|
| 1. | The student wanders around the room when he/she should be in his/her seat working or otherwise paying attention. | ☐ | ☐ |
| 2. | The student has an established friendship(s) with a peer(s) in the classroom. | ☐ | ☐ |
| 3. | The student uses appropriate techniques to obtain teacher/adult attention or assistance. | ☐ | ☐ |
| 4. | The student frequently fails to comply with teacher/adult established rules. | ☐ | ☐ |
| 5. | The student fails to use "please", "thank you", or other responses of courtesy appropriately | ☐ | ☐ |

| | | | |
|---|---|---|---|
| 6. | The student seldom follows a command of compliance without additional assistance by the teacher. | ☐ | ☐ |
| 7. | It seems that the teacher/adult frequently has to reprimand the student for various inappropriate behavior. | ☐ | ☐ |
| 8. | Peers seldom want the student to participate in their activities. | ☐ | ☐ |
| 9. | In freetime situations the student shares toys or materials with peers. | ☐ | ☐ |
| 10. | The student fails to apologize when infringing on a peer. | ☐ | ☐ |
| 11. | The student uses appropriate greeting (hello, hi) and parting (good-bye) phrases with friends/peers. | ☐ | ☐ |
| 12. | The student uses "please", "thank you" or other responses of courtesy with peers. | ☐ | ☐ |
| 13. | The student does not use greeting (hello, hi) or parting (good-bye, bye) phrases with his/her peers. | ☐ | ☐ |
| 14. | Peers express a desire for the student to participate in their activities. | ☐ | ☐ |
| 15. | When approached by peers, the student frequently talks or plays with them. | ☐ | ☐ |
| 16. | As a teacher I very much enjoy working with this student. | ☐ | ☐ |
| 17. | When the student is to be in his/her seat working or attending he/she generally does so. | ☐ | ☐ |
| 18. | When unable to manipulate the teacher/ adult the student results to tantruming or other inappropriate behavior. | ☐ | ☐ |
| 19. | This student appears to have made few gains in skill development so far this year. | ☐ | ☐ |
| 20 | When left unsupervised the student seldom gets into trouble. | ☐ | ☐ |

| | | | |
|---|---|---|---|
| 21. | The student appears hesitant to interact with adults other than his/her parents or teacher(s). | ☐ | ☐ |
| 22. | When participating in teacher/adult structured activities, the student complies with established rules. | ☐ | ☐ |
| 23. | During freetime the student plays beside peers without creating conflicts. | ☐ | ☐ |
| 24. | If unable to have his way with peers, the student resorts to aggressive tantruming or other inappropriate behavior. | ☐ | ☐ |
| 25. | The student seldom gives an appropriate response when the teacher greets (hello, hi) or parts (good-bye, bye) from the child. | ☐ | ☐ |
| 26. | In freetime settings the student is possessive and refuses to share with peers. | ☐ | ☐ |
| 27. | When unhappy or angry with a peer, the student uses appropriate strategies for solving the problem rather than physical force or tantruming. | ☐ | ☐ |
| 28. | If the student is unable to get his/her way with peers, he/she does not resort to aggressive, tantruming or other inappropriate behavior. | ☐ | ☐ |
| 29. | Teachers/adults seldom have to reprimand the student for inappropriate responses or behavior. | ☐ | ☐ |
| 30. | If the teacher leaves the room, the student is likely to do something he/she should not. | ☐ | ☐ |
| 31. | When reprimanded by the teacher/adult the student accepts the consequences without sulking or attempting to withdraw. | ☐ | ☐ |
| 32. | The student frequently interacts with adults other than his/her teacher(s) or parent(s). | ☐ | ☐ |
| 33. | If infringing on a peer the student expresses an apology. | ☐ | ☐ |
| 34. | When unhappy or angry with a peer, the student uses physical force to express displeasure. | ☐ | ☐ |

| | | | |
|---|---|---|---|
| 35. | If unable to get his/her way with the teacher, the student accepts what is expected by the teacher. | ☐ | ☐ |
| 36. | During individual and small group instruction, the student is frequently distracted or inattentive. | ☐ | ☐ |
| 37. | The student frequently uses inappropriate techniques to obtain teacher/adult attention or assistance. | ☐ | ☐ |
| 38. | This student appears to have made greater gains in skill development during the current year. | ☐ | ☐ |
| 39. | The student is generally unwilling to assist a peer in need of help. | ☐ | ☐ |
| 40. | When given a command of compliance, the student follows the command given. | ☐ | ☐ |
| 41. | The student isn't really friends with any of his/her classroom peers. | ☐ | ☐ |
| 42. | When the teacher directs a greeting (hello, hi) or parting (good-bye, bye) phrase toward the student, that student responds with an appropriate response. | ☐ | ☐ |
| 43. | When approached by a peer, the student moves away or refuses to talk with the peer. | ☐ | ☐ |
| 44. | When left to play with peers, the student frequently creates conflict. | ☐ | ☐ |
| 45. | It is frequently not reinforcing to me to work with this child. | ☐ | ☐ |
| 46. | The student is seldom distracted or inattentive during individual or small group instruction. | ☐ | ☐ |
| 47. | When corrected or reprimanded, the student sulks or attempts to withdraw from the teacher/adult. | ☐ | ☐ |
| 48. | The student is willing to assist a peer in need of help. | ☐ | ☐ |

Appendix E

Respondent #:

Child:

TR-TMR Questionnaire #2
1976-1977

INSTRUCTIONS: Below are a series of statements concerning how parents might feel about their handicapped child. Carefully read each statement and then indicate the extent to which you believe the statement describes how you view either your child or your child's development during his/her preschool years. Indicate the extent to which you agree or disagree by circling the letters according to the code below. Although certain items may appear redundant, please mark each item. Circle ONLY ONE of the letter codes per item.

SD - I strongly disagree

D - I disagree

U - I'm undecided

A - I agree

SA - I strongly agree

| | | |
|---|---|---|
| 1. | As a result of being enrolled in a preschool program, a child would undoubtedly develop a number of self-help skills (toileting, dressing, feeding, etc.) that he/she would not have develped without the preschool experience. | SD D U A SA |
| 2. | As a result of being enrolled in a preschool program, a child would undoubtedly develop language skills that he/she would not develop without the preschool experience. | SD D U A SA |
| 3. | I have never felt that my child has restricted me in my developing or entertaining friends. | SD D U A SA |
| 4. | I believe the only way to control my child is for me to be strict authoritarian. | SD D U A SA |
| 5. | If given the opportunity, parents of a handicapped child should enroll that child in a preschool program. | SD D U A SA |
| 6. | I don't think that preschool programs for handicapped children are entirely appropriate. | SD D U A SA |

| | | |
|---|---|---|
| 7. | I probably would not recommend that other parents of handicapped children enroll their children in a preschool program. | SD D U A SA |
| 8. | A preschool program would have little effect in helping a child develop language skills. | SD D U A SA |
| 9. | I believe my child will develop sufficient skills to get himself/herself from one side of town to the other. | SD D U A SA |
| 10. | One positive aspect of having a handicapped child is that when my friend's children are grown and gone I will still have a child at home. | SD D U A SA |
| 11. | I would recommend that other parents of handicapped children enroll their child in a preschool program. | SD D U A SA |
| 12. | I believe a preschool program would be unsuccessful in teaching self-help skills (toileting, dressing, feeding, etc.) to a handicapped child younger than six years of age. | SD D U A SA |
| 13. | My child is less of a drain on my physical energies now than when he/she was three years old. | SD D U A SA |
| 14. | I believe my child will lead a happy and productive life although he/she may always require some degree of adult supervision. | SD D U A SA |
| 15. | As a result of being enrolled in a preschool program, a child would undoubtedly develop a number of social skills (shares with others, pays attention, does not suck thumb, etc.) that he/she would not have developed without the preschool experience. | SD D U A SA |
| 16. | A child's preschool program would help parents to recognize their child's potentials as well as his/her limitations. | SD D U A SA |
| 17. | I believe that the majority of preschool programs are entirely appropriate for handicapped children. | SD D U A SA |
| 18. | A preschool program probably would be unsuccessful in eliminating inappropriate behaviors that many children exhibit before six years of age. | SD D U A SA |

| | | |
|---|---|---|
| 19. | I do not get angry with my handicapped child any more than I do (would) with my other children. | SD D U A SA |
| 20. | I doubt that my child will lead a happy and productive life because he/she will never be totally self-sufficient. | SD D U A SA |
| 21. | Had my child been enrolled in a preschool program, and I had heard that the school district was going to terminate the program, I would have expressed to the school administration my desire to retain the program. | SD D U A SA |
| 22. | I do not believe my child will ever develop sufficient skills to use public transportation to get from one side of town to the other by him/herself. | SD D U A SA |
| 23. | I believe my child has many skills that other handicapped children of the same age do not have. | SD D U A SA |
| 24. | I sometimes feel angry with my handicapped child because of the additional demands he/she requires of me. | SD D U A SA |
| 25. | I doubt that parents learn much from the preschool teaching staff about teaching new skills to their children. | SD D U A SA |
| 26. | Children don't acquire many social skills (shares with others, pays attention, no longer sucks thumb, etc.) during a preschool experience that they would not have developed before six years of age anyway. | SD D U A SA |
| 27. | My child has far fewer skills than other handicapped children of the same age. | SD D U A SA |
| 28. | I am not hesitant about taking my child into public establishments. | SD D U A SA |
| 29. | Most parents who enrolled their child in a preschool program would look for an alternative preschool placement if they knew then what they know now. | SD D U A SA |
| 30. | I believe that strict authoritarian control of my child is a poor substitute for a more understanding view. | SD D U A SA |

| | | |
|---|---|---|
| 31. | My child is still as much of a drain on my physical energies as he/she was when he/she was three years old. | SD D U A SA |
| 32. | It is possible for any parent to spend too much time with their child. | SD D U A SA |
| 33. | Preschool teaching staffs make parents feel that the staffs are always available to assist parents with any problem their children may have. | SD D U A SA |
| 34. | Preschool programs do little to help parents recognize their child's capabilities as well as his/her limitations. | SD D U A SA |
| 35. | Preschool teachers keep parents fully informed about their child's progress in the program. | SD D U A SA |
| 36. | If I were asked in public if I thought preschool programs were worth the cost, I would probably say "no". | SD D U A SA |
| 37. | My child has restricted me from developing friendships and entertaining friends in my home. | SD D U A SA |
| 38. | I can think of few, if any, positive aspects about being a parent/guardian of a handicapped child. | SD D U A SA |
| 39. | I have some reservations about taking my child into restaurants. | SD D U A SA |
| 40. | Preschools are successful in eliminating several inappropriate behaviors that children exhibit before six years of age. | SD D U A SA |
| 41. | I do not enjoy my handicapped child as much as I do my other children. (If you have only one child - I would not enjoy my handicapped child as much as I would my other children.) | SD D U A SA |
| 42. | I have few concerns about my child's well being when he/she is with other individuals. | SD D U A SA |
| 43. | I don't believe I could spend too much time with my child. | SD D U A SA |
| 44. | Parents learn many helpful points from preschool staff about teaching their children new skills. | SD D U A SA |

45. Preschool teachers do little to inform parents about their children's success in school. SD D U A SA

46. I get as much pleasure from my handicapped child as I do from my non-handicapped child. (If you have only one child - I would get as much pleasure from my handicapped child as I would from my non-handicapped child.) SD D U A SA

47. Preschool teaching staff do not make parents feel that the staff is available to assist parents with problems they may be having with their child. SD D U A SA

48. I worry about my child when he/she is with anyone else but me. SD D U A SA

Appendix F

Respondent #:

TR-TMR Questionnaire #3
1976-1977

INSTRUCTIONS: Below are a series of statements of how teachers might feel about handicapped children in their classrooms and/or handicapped children in general. Carefully read each statement and then indicate the extent to which you believe the statement describes how you feel. Indicate the extent to which you agree or disagree with each statement by circling the letter(s) according to the code below. Although certain items may seem redundant, please mark EVERY item. Circle ONLY ONE of the letter coes per item.

SD - I strongly disagree

D - I disagree

U - I'm undecided

A - I agree

SA - I strongly agree

1. The children in my classroom who were enrolled in a preschool program are currently functioning at a higher level in the self-help skills area than they would be if they had not had the preschool experience. SD D U A SA

2. The child who has attended a preschool will probably be accepted more by his/her peers than will the child who did not attend a preschool program. SD D U A SA

3. If an intervention strategy was unsuccessful in producing the desired change in a preschool student it is likely that the student was too retarded to learn the skill. SD D U A SA

4. Inappropriate behaviors in children as young as one or two years of age can be eliminated while in a preschool. SD D U A SA

5. The children in my classroom who were enrolled in a preschool program are currently functioning at a higher level in the academic skills area than they would be if they had not had the preschool experience. SD D U A SA

| | | |
|---|---|---|
| 6. | If a child attends a preschool program, it is likely that many of the inappropriate social behaviors will be eliminated by the time the child reaches school age. | SD D U A SA |
| 7. | I would rather teach a group of children who had not attended a preschool. | SD D U A SA |
| 8. | Parents seldom learn skills, while their children are in preschool, that are useful with their other children. | SD D U A SA |
| 9. | A child who has not attended a preschool program will probably not be accepted by peers as well as will the child who attended a preschool. | SD D U A SA |
| 10. | Preschool programs can be beneficial in teaching skills to handicapped children as young as one or two years of age. | SD D U A SA |
| 11. | A handicapped child who has attended a preschool program will have an easier adjustment to the schoolage program than will a child without a preschool experience. | SD D U A SA |
| 12. | Preschool programs should separate handicapped from non-handicapped children because the complications of trying to provide for diverse skill levels outweigh any advantages of combining the two groups. | SD D U A SA |
| 13. | A preschool experience has little or no effect on a child's functional language skills after the preschool years. | SD D U A SA |
| 14. | The children in my classroom who attended a preschool program would probably be functioning at their current levels in academic skills whether they had attended a preschool or not. | SD D U A SA |
| 15. | All the fuss about parental involvement in the child's educational program is only a passing fad. | SD D U A SA |
| 16. | Children who have not attended a preschool will adjust to the schoolage program as well as will children who attended a preschool. | SD D U A SA |
| 17. | If a child fails to learn a skill through a particular instructional strategy, it is probably the fault of the program not the child. | SD D U A SA |
| 18. | The major reason for having a preschool curriculum broken down into various areas is to comply with the tradition of regular educational programs. | SD D U A SA |

| | | |
|---|---|---|
| 19. | Whether a child attended a preschool program or not has no effect on the behavioral problems exhibited by that child in the classroom. | SD D U A SA |
| 20. | The children in my classroom who were enrolled in a preschool program are currently functioning at a higher level in the language skills area than they would be if they had not had the preschool experience. | SD D U A SA |
| 21. | I frequently receive information about children from their preschool teachers, that helps me in planning educational programs for those children. | SD D U A SA |
| 22. | Whether a child was in a preschool program or not has no direct effect on his current functional level. | SD D U A SA |
| 23. | A preschool program has little to offer parents beyond the skills that their children learn in school. | SD D U A SA |
| 24. | I believe that educational programming for a handicapped child is of little value for children younger than six years of age. | SD D U A SA |
| 25. | One of the most important things a child can learn in preschool is that his behavior creates certain responses from others in his/her classroom environment. | SD D U A SA |
| 26. | Preschool programs have value to parents in addition to the skills that the children are taught. | SD D U A SA |
| 27. | The children in my class that attend preschool would be functioning at their current level of social skill development even if they hadn't attended the preschool. | SD D U A SA |
| 28. | If, in front of a large group of people, I was asked if I favored preschools for handicapped children I would probably say "no." | SD D U A SA |
| 29. | It is not important for a preschool child to learn that his/her behavior has an effect on other people's behavior. | SD D U A SA |
| 30. | Little information is included in a child's preschool file that will assist me in programming for that child. | SD D U A SA |

| | | |
|---|---|---|
| 31. | Enrolling a handicapped child in a preschool program will probably have little or no positive effect on that child's later school placement. | SD D U A SA |
| 32. | Parents of children in preschool programs for the handicapped, often learn skills to deal with their child that are beneficial in their relationships with other children in the family. | SD D U A SA |
| 33. | There is much that handicapped and nonhandicapped children can learn about and from each other by being enrolled in the same classroom. | SD D U A SA |
| 34. | The children in my classroom who were enrolled in preschool programs are currently functioning at a higher level in the social skills area than they would be if they had not had the preschool experience. | SD D U A SA |
| 35. | If I were asked to speak at a school board meeting in support of a preschool program for handicapped children that was to be discontinued, I would have no reservations about doing so. | SD D U A SA |
| 36. | I doubt if educational programs can have much success in reducing inappropriate behaviors in children younger than six years of age. | SD D U A SA |
| 37. | If parents would work with their children on the same skills that are being taught in school, the children would learn more skills more effectively. | SD D U A SA |
| 38. | If I had a choice of teaching a group of students that had been enrolled in a preschool program and a group of students that had not, I would choose the group with a preschool experience. | SD D U A SA |
| 39. | The breakdown of preschool curriculum is to identify and ensure that instruction occurs in the major areas of future importance to the student. | SD D U A SA |
| 40. | If a handicapped child is enrolled in a preschool program, that program may impact on the child's later school placement. | SD D U A SA |